UNITED
NATIONS

E

Economic and Social Council

Distr.
GENERAL

E/CN.17/1995/4
7 February 1995

ORIGINAL: ENGLISH

COMMISSION ON SUSTAINABLE DEVELOPMENT
Third session
11-28 April 1995

REVIEW OF SECTORAL CLUSTERS, SECOND PHASE: LAND, DESERTIFICATION, FORESTS AND BIODIVERSITY

Managing fragile ecosystems: combating desertification and drought

Report of the Secretary-General

CONTENTS

	Paragraphs	Page
INTRODUCTION	1 - 11	3
I. GENERAL OVERVIEW	12 - 24	4
II. REVIEW OF PROGRESS ACHIEVED, MAIN POLICY ISSUES, AND EXPERIENCES IN THE MAIN PROGRAMME AREAS OF CHAPTER 12 OF AGENDA 21	25 - 75	6
A. Country experiences	25 - 63	6
1. Developing countries	26 - 45	7
2. Developed countries	46 - 61	10
3. Countries in transition from a centrally planned economy to a market economy	62 - 63	14
B. Summary of the experiences of major groups and non-governmental organizations	64 - 75	14
1. Major groups	64 - 70	14

95-02423 (E) 140295 150295

CONTENTS (continued)

		Paragraphs	Page
	2. Non-governmental organizations	71 - 75	15
III.	MATTERS RELATED TO FINANCE AND TECHNOLOGY TRANSFER ..	76 - 88	16
	A. Finance	76 - 84	16
	B. Technology transfer	85 - 88	18
IV.	RECENT DEVELOPMENTS AND EXPERIENCES IN INTERNATIONAL COOPERATION	89 - 103	19
	A. Intergovernmental processes	89	19
	B. Organizations of the United Nations system	90 - 103	19
V.	CONCLUSIONS AND PROPOSALS FOR ACTION	104 - 121	22
	A. Conclusions	104 - 115	22
	1. Major result of the United Nations Conference on Environment and Development	104 - 108	22
	2. Popular participation	109	22
	3. Economics and trade	110	23
	4. Strategic frameworks	111	23
	5. Global awareness-raising	112	23
	6. Partnerships	113	23
	7. Increasing the knowledge base	114	24
	8. Further actions	115	24
	B. Recommendations	116 - 121	25

INTRODUCTION

1. The present document reports on progress in the implementation of the aims set out in chapter 12 of Agenda 21 1/ (Managing fragile ecosystems: combating desertification and drought) since the United Nations Conference on Environment and Development (UNCED) in June 1992, and presents a set of recommendations for action. The report was prepared by the United Nations Environment Programme (UNEP) as Task Manager for chapter 12 of Agenda 21, in consultation with the United Nations Secretariat, in accordance with arrangements agreed to by the Inter-Agency Committee on Sustainable Development at its fourth session. It is the result of consultations and information exchanges between designated focal points in 19 United Nations agencies, government officials and a number of other institutions and individuals.

2. In 1992, 15 years after the United Nations Conference on Desertification and the resulting Plan of Action to Combat Desertification, the Governments at Rio de Janeiro adopted an internationally negotiated definition of desertification and a programme to address it: chapter 12 of Agenda 21.

3. In the interim, there had been much talk and some action, but little that could be directly attributed to the Plan of Action. Of the numerous projects undertaken in the drylands, many helped control land degradation, some made it worse, despite the best intentions, and many were not sustained beyond the initial donor input stage.

4. There are some 1 billion people living in the rural areas of the world's drylands. This is almost one fifth of the population of the globe. 2/

5. The drylands, defined as the arid, semi-arid and dry sub-humid regions (excluding hyper-arid deserts), cover one third of the land area of the world. Drylands are distributed in all continents: 25 per cent in Africa, 32 per cent in Asia, 14 per cent in North America, 13 per cent in Australia, 10 per cent in South America and 6 per cent in Europe.

6. The best available estimates by the leading national experts world wide indicate that 70 per cent of the drylands are degraded to some extent mainly through degradation of the natural vegetation, and that the rate of increase was 3.4 per cent between 1984 and 1991. Each year some 3.5-4.0 million hectares of agriculturally used croplands are said to be lost as a result of the various processes of land degradation around the world. Millions of people are at risk of having to abandon their lands and migrate.

7. The economic loss caused by desertification worldwide, in terms of average income foregone, was estimated in 1991 to be more than US$ 42 billion per year, most of it in Asia (US$ 20.9 billion per year) and Africa (US$ 9.3 billion per year). These figures are all the more alarming when it is realized that the affected countries, particularly in Africa, rank among the poorest and least developed in the world.

8. Many authorities consider that the period from the late 1960s to the late 1980s was one of constant drought in sub-Saharan Africa. Satellite imagery

showed reduced ephemeral green biomass production, creating visions of "expanding deserts" and "marching sand dunes". Closer scientific inspection revealed that those changes reflected water shortage and not necessarily permanent soil fertility loss or land degradation.

9. There has been considerable argument about the nature of and solution for desertification. Scientific and technical information was often inconsistent owing to the different, and changing definitional bases. UNEP tried to redefine desertification as land degradation in the drylands resulting principally from human actions (which could change), an attempt to avoid the contentious word "desertification" altogether. "Land degradation" and "loss of soil productivity" are not, however, attention-grabbing titles. Further, some interpreted this as an allocation of blame rather than an indicator of opportunity for effective remedial action.

10. Many countries, particularly in Africa, planned to address the problem through national plans of action, but overall desertification control was given low priority at both the national and international levels; countries lacked the necessary financial resources and were unable to mobilize external resources. To make matters worse, the people most challenged to sustain themselves on their land against all odds were among the poorest, most marginalized and least visible politically, geographically and economically. Desertification control was not integrated into socio-economic development and affected populations were not involved in planning and implementation of the programmes. The proposed solutions were thought to be technical, whereas they are now recognized as largely socio-economic.

11. Although these issues were included in the Plan of Action to Combat Desertification, chapter 12 of Agenda 21, on combating desertification and drought, brought them more into focus and changed the emphasis from technical to political. Of major importance was the recommendation for significant political effort to negotiate an international convention on desertification. In an impressive effort, the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, together with four regional implementation annexes and a draft resolution on urgent action for Africa, was completed within the time specified, on 17 June 1994. The Convention places responsibility for implementation squarely on Governments, with United Nations organizations playing a supporting role - a significant change from the Plan of Action.

I. GENERAL OVERVIEW

12. The realization of the political and social reality of desertification and a pragmatic response to the economic prospects facing most developing countries at the Rio Conference led to the development of a common understanding on the importance of the "bottom-up approach". This necessity for community involvement and commitment pervaded the negotiations of the Convention and is clearly reflected in the text.

13. The focus of attention of most concerned Governments, agencies and non-governmental organizations throughout the post-UNCED period has been the intergovernmental negotiations for the Convention.

14. From the outset it was considered appropriate for the Intergovernmental Negotiating Committee for the Elaboration of an International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, to negotiate an instrument focusing particular attention on the needs of Africa, where the extent and social impact of desertification is greatest.

15. In subsequent debates, however, it became clear that desertification was of concern not only to Africa, but that annexes for Asia, Latin America and the Caribbean and, finally, the Northern Mediterranean should also be negotiated. All four regional annexes were completed with the Convention.

16. In addition to the main negotiation sessions, there were many ancillary meetings, especially in Africa. The Organization of African Unity (OAU) played a notable role and the draft text prepared by the OAU Expert Group in May 1993 provided a substantial base for the subsequent compilation text for the negotiations. Regional drafting meetings were held to prepare the annexes. The International Panel of Experts on Desertification helped advise the ad hoc secretariat and delegations and produced a number of reports, for example, on the linkages between desertification and biodiversity. Other important inputs included a report prepared under the auspices of UNEP and the World Meteorological Organization (WMO) on the interactions of desertification and climate and the WMO revised publication on climate variations, drought and desertification.

17. The ad hoc secretariat of the Negotiating Committee played a major role in the success of the negotiations by preparing key documents, such as a compilation of government views and later a negotiating text. It also used computer technology to track changes in the text rapidly, as negotiating sessions progressed.

18. As at UNCED non-governmental organizations, with support particularly from the secretariat, UNEP and the United Nations Development Programme (UNDP)/United Nations Sudano-Sahelian Office (UNSO), were actively involved in the process. They made effective interventions and contributed significantly to the final negotiated text.

19. There were numerous additional activities related to the Negotiating Committee. The ad hoc secretariat, with assistance from other organizations, supported the case-studies on desertification that were carried out in various countries and subregions to determine the status of desertification and to help in preparing action programmes. The results were varied, but the secretariat was able to prepare a paper drawing lessons from these case-studies for the preparation of action programmes elsewhere.

20. The involvement of United Nations organizations in the Negotiating Committee process varied. Major roles were played by UNEP and UNDP/UNSO in providing substantial support to the ad hoc secretariat, the case-studies,

workshops and meetings. Additional support came notably from WMO, the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Capital Development Fund (UNCDF). These and other organizations and bodies contributed to the negotiating sessions and provided substantive contributions and technical support to the negotiations.

21. Despite funding and other restrictions, the ad hoc secretariat played a major role in the success of the Negotiating Committee process. The interim secretariat will need continued substantial support to carry out the functions, some of them new, required by the Convention and the Committee, including facilitating the implementation of urgent action for Africa.

22. Much may continue to depend on other organizations and agencies. They are now also reviewing their responses to the Convention and the call for urgent action for Africa. This is likely to make many demands on their available resources.

23. Although international focus has been on the negotiations, at the field and project levels work has continued, with the support of many donors and agencies, covering a wide range of activities including the application of such new approaches as the land management programmes in the Sahel.

24. Eighty-five countries and the European Union signed the Convention at a ceremony in Paris on 14-15 October 1994. After the signing, Governments announced their plans for implementing the Convention. Many affected countries pledged to step up national programmes. Some announced the setting up of national action committees to coordinate efforts with those of non-governmental organizations, local communities, international organizations and donors. A number of countries belonging to the Organisation for Economic Cooperation and Development (OECD) announced aid packages, mostly to be reallocated from existing development funds, and earmarked for assistance to Africa (see below). The Convention is open for signature at United Nations Headquarters until 13 October 1995; as at 15 December 1994, a total of 94 countries had signed, in addition to the European Union.

II. REVIEW OF PROGRESS ACHIEVED, MAIN POLICY ISSUES, AND EXPERIENCES IN THE MAIN PROGRAMME AREAS OF CHAPTER 12 OF AGENDA 21

A. Country experiences

25. No official national reports to the Commission on Sustainable Development were received before the original deadline for completion and submission of the present report. The following section is based on information available to UNEP, updated using official reports received in December. It has also been reviewed by delegations at the meeting of the Negotiating Committee in January 1995 and takes into account their comments and proposed additions.

1. Developing countries

26. Despite the focus on the negotiation process, there has been increased activity at the country level. This trend is expected to continue. Over the next three years, countries are projected to borrow nearly US$ 2 billion from the World Bank for projects with components for natural resource management in the drylands, of which almost US$ 700 million is for projects designed mainly to help arrest degradation of renewable natural resources. Most notable is the annual average increase of borrowing for such projects, and the cross-boundary nature of some of the projects concerned, for example, the Aral Sea Programme and the Middle East Desertification Initiative.

(a) Latin America and the Caribbean

27. Latin American and Caribbean countries have been active throughout the negotiating process of the Convention, an attitude that reflects the priority given by the region to combating drought and desertification. The elaboration of the implementation annex for the region was preceded by a series of consultations and coordination meetings culminating with the regional meeting held at Santiago in May 1994. These coordination efforts profited from the experience that many Latin American and Caribbean countries have had in combating desertification and drought prior to the Rio Conference, and from the active participation of non-governmental organizations.

28. Since the United Nations Conference on Environment and Development, most countries have prepared, revised or are in the process of finalizing national plans of action. Common features of these plans are: (a) increased participation of the local communities and non-governmental organizations; (b) the need to eradicate poverty deriving from desertification and drought; (c) the need to mobilize financial resources and technology from abroad in order to meet the objectives of the plans; (d) the need to adopt a global approach to the problem, not only in geographical terms, embracing different regions of the country and different countries of the region, but also in relation to the links between favourable terms of trade for Latin American and Caribbean products, such as the elimination of trade restrictions and foreign debt, on the one hand, and the possibility of adopting sustainable patterns of land use, on the other.

29. Small island States face particular challenges. The Government of the Bahamas has taken concrete steps consistent with Agenda 21 to encourage sustainable farming, forestry, tourism and urban development; all within the constraints of its fragile ecosystem. The thin Bahamian soils are at risk of soil erosion and the freshwater table overlies saltwater, with the consequent danger of saltwater intrusion and salinization. The Government is aware of the fragility of the ecosystem and is enacting regulatory and monitoring programmes to protect land from the threat of desertification and salinization.

(b) Asia

30. China is paying increasing attention to environmental concerns in view of its rapid economic development. Along with salinization, wind and water erosion have contributed to the desertification of large tracts of land and the

siltation of important river systems. China, however, remains committed to combating desertification and has taken domestic actions immediately after signing the Convention on 14 October 1994. Such actions include:

(a) The drafting of the China National Action Programme to Combat Desertification and its inclusion in China's Agenda 21, the national strategy for sustainable development;

(b) The establishment of the China National Committee to Implement the Convention to Combat Desertification, an institution to coordinate desertification control efforts;

(c) The enhancement of existing institutions related to combating desertification, such as the National Monitoring Centre, the Training Centre and the Research and Development Centre;

(d) Specific projects in the field of afforestation, land reclamation and soil and water conservation;

(e) The plan to draft the Law on Combating Desertification.

Such actions demonstrate China's long-term commitment to preventing and controlling desertification.

31. In India, over the years, a variety of programmes have been initiated to deal with problems of desertification, in particular under the Drought-prone Area Programme and the Desert Development Programme, started by the Government of India in cooperation with State Governments and village-level organizations. Several research initiatives have been taken by national and state-level organizations. Important national-level organizations include:

(a) Central Arid Zone Research Institute, Jodhpur (and its environmental information centre in particular);

(b) Arid Forest Research Institute, Jodhpur;

(c) Grass and Fodder Research Institute, Jhansi;

(d) National Afforestation and Eco-Development Branch, New Delhi.

32. The Rajasthan Canal Project is a concrete effort to convert desert lands into a well-irrigated tract. The project provides irrigation facilities to more than 2.5 million hectares of the Indian desert, of which 1.2 million hectares are irrigable. The total length of the main canal is 649 kilometres and runs in the districts of Ganganagar, Bikaner, Jaisalmer and Jodhpur.

33. The national environmental awareness campaign with the help of grass-roots level non-governmental organizations, and the Centre for Environment Education at Ahmadabad, with the help of schools and new education materials, play an important role in creating interest in the application of science and technology in combating desertification in India.

34. Pakistan has completed a national action plan since the Rio Conference and is now evaluating its compatibility with the requirements of the Convention for national action programmes.

35. The Islamic Republic of Iran has allocated significant resources to desertification control activities in more than 4 million hectares in the past few years, and plans to address another 10 million hectares in the next five years. It has established a National Committee to Combat Desertification to formulate a national programme of action. The country has opened a local office of the Network of Research and Training Centres on Desertification Control in Asia and the Pacific. With support from IFAD and the Office of the United Nations High Commissioner for Refugees (UNHCR), the Government has also rehabilitated 140,000 hectares of range lands degraded by refugees.

36. Other States have played important roles in the negotiations and have initiated several related activities. The newly independent States of central Asia contributed substantially to the preparation of the regional annex for Asia.

(c) Africa

37. Both regional and subregional organizations have been very active, especially in the Convention negotiating process and in developing the African strategy for the implementation and follow-up of the Convention. OAU, the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS), the Intergovernmental Authority for Drought and Development (IGADD), the Southern African Development Community (SADC) and the Arab Maghreb Union (UMA), as well as the African Deserts and Arid Lands Committee of the African Ministerial Conference on the Environment, have held post-Convention expert meetings and/or high-level political consultations. Action programmes for the follow-up to the Convention and for the implementation of urgent action for Africa have been prepared.

38. New emphasis has been given to some issues. For example, at the CILSS conference on land tenure and decentralization, in May 1994, it was recommended that land-use legislation be based on equity and social justice; that marginalized social categories (women, peasants, pastoralists) have access to natural resources, and be increasingly involved in decision-making and resource development; that public, constitutional and juridical recognition and legitimacy of rural institutions be endorsed and decentralized structures created to establish local community funds; and that the role of the State be changed from that of an authority to that of a counsellor.

39. A significant new factor in Africa could prove to be the re-emergence of South Africa, especially in the SADC subregion. Already, there are signs throughout Africa of intensified action to involve local peoples in the dryland development dialogue with Governments and non-governmental organizations. For example, in 1993/94, the Government of Botswana, in the context of the SADC Kalahari-Namib Plan, invited non-governmental organizations and local land-users in arid/semi-arid rangeland areas to village-level seminars to discuss the desertification problem and locally possible remedies. Further meetings are planned for 1995 to consolidate the conclusions of this ongoing process.

40. In Nami' ia, the Desert Research Foundation organized a workshop for the same purpose. In addition to workshops, the Government of Namibia has established a new Ministry of Environment and Tourism and a Directorate of Environmental Affairs to provide strong leadership in environmental planning in the country. Since UNCED, Namibia has enacted legislation and programmes to promote soil conservation and sustainable development practices to arrest the processes of desertification. Namibia is proud of its unique desert environment and is actively protecting the Namib Desert ecosystem.

41. The United Republic of Tanzania, which in the late 1970s and early 1980s implemented a successful technical project to stop overgrazing-induced land degradation by destocking some 120,000 head of cattle in the Kondoa district of central Tanzania, is now working on the socio-economic aspect, seeking ways to manage growing population pressure and reintroduce livestock into the farming systems of the under-utilized, formerly eroded area.

42. Since UNCED, Burkina Faso has given greater priority to the environment and played an active role in the negotiation process for the Convention. The Government has established inter-ministerial structures for environmental management, including for the implementation of Agenda 21. To contribute to the implementation of the Environmental Action Plan, a unit to collect and process environmental information has been set up.

43. The strategic options and other programmes and projects of Chad's Plan of Action to Combat Desertification constitute a concrete response to the provisions of the Convention and particularly to the resolution on urgent action for Africa. Chad participated actively in the negotiation of the Convention and will begin the process of ratification with minimum delay.

44. In 1993, the Sudan prepared a five-year programme of action as well as a national case-study, which was submitted to the Negotiating Committee at its fourth session. Recent work has helped focus efforts on the key areas. Government figures indicate that 414,000 square kilometres are severely or very severely affected by desertification; altogether, 1.26 million square kilometres are affected to some degree. The Sudan was an active participant in the negotiations, has signed the Convention and is in the process of ratification.

45. The Niger is in the process of developing a national framework programme for environment and sustainable development, involving all partners in an approach that is integrated, decentralized and broadly participative.

2. Developed countries

46. The developed countries have continued to support programmes for desertification control and drought mitigation in partnership with affected developing countries. In recent years, the realization of the underlying systemic constraints to long-term sustainable dryland development has permeated donor policies and resulted in an increased focus on incentives for their improvement. Since the Rio Conference, there has been greater emphasis on involving non-governmental organizations and local communities and stakeholders

in the planning and execution of development efforts, in order to create a more enabling environment for sustainable resource management.

47. In the developed countries themselves, programmes and projects related to desertification and land degradation have received more attention than previously.

(a) Europe

48. A component of the European programme (42 billion ECU) for mitigating land degradation in southern Europe, the Mediterranean Desertification and Land Use (MEDALUS) project is investigating desertification processes in the Mediterranean area, modelling landscape systems and formulating policy proposals. The Assessment and Monitoring of Desertification in the Mediterranean Region (ASMODE) project, undertaken jointly by Dutch and Spanish institutions, aims at demonstrating the utility of remote sensing for monitoring desertification, preparing a desertification index and developing a geographic information system. Maps will then be produced on the status and risk of desertification, to make it possible to simulate the impacts of European agricultural policy on land degradation.

49. The Joint Research Centre of the European Commission has numerous activities connected with environmental monitoring using low resolution satellite imagery, for example of tropical vegetation. Synoptic data from the MERCATOR (Monitoring Ecosystems with Remote Sensing and Cartography of African Tropical Regions) project is used by early warning systems and national services in charge of natural resource management.

50. French cooperation with regard to desertification control is concentrated in the countries of the Sahel, giving particular attention to community-based interventions and assistance to reduce the impacts of desertification on the poorest people and nomads. In addition, France undertakes monitoring and assessment activities related to desertification. The climatic trend surveys undertaken by the Office de la recherche scientifique et technique outre-mer (ORSTOM) contribute to a better understanding of El Niño dynamics, ocean circulation and long-term climatic changes, and of paleo-climatic and paleo-vegetation evolution. The water management programmes involve the study and modelling of water exchange processes between soil vegetation and the atmosphere in the dry tropics. A new programme is being launched on renewable energy sources in Africa, with a view to reducing the impact of household energy consumption on forest resources.

51. Belgium also supports activities to study solar and other renewable sources of energy as part of its efforts to transfer technology and assist in the sustainable development of the specific dryland countries and regions in which its overseas aid is concentrated. Belgium also contributes to the Special Programme for Africa, which aims to combat drought and desertification south of the Sahara.

52. As a contribution to the Negotiating Committee process, a Spanish symposium on Desertification and Migrations, held in Almeria in February 1994, highlighted *increasing rates of emigration from the drylands and formulated the principle of*

the "right to remain" of people not wishing to abandon family lands. Spain is also creating an Institute of Desertification in Valencia to carry out scientific research.

53. The Scandinavian countries have a long-established interest in the drylands. They have played a prominent role since UNCED - the Chairman of the Negotiating Committee being provided by Sweden - and they have given considerable support to the negotiation process for the Convention. Denmark has established a new fund for international environment and emergency assistance, targeting an additional one half per cent of gross national product (GNP) to this fund by the year 2004.

(b) United States of America

54. In the United States of America, the diversity of management and ownership structures has led to a variety of methods and systems for assessing environmental conditions across all lands that are often difficult to compare. To overcome the lack of comprehensive data on drylands, the Environmental Protection Agency has begun an Environmental Monitoring and Assessment Programme, independent of data produced by land management agencies. Politically, the outcome of and compliance with the 1985 Farm Bill is being studied in preparation for the 1995 Farm Bill. The 1985 Bill requires growers to have conservation systems in place by 1995 to be eligible for government support or subsidies, and to take steps against erosion of the most fragile soil. The Department of Agriculture had determined that 145 million of the 400 million crop land acres were highly erodible. By the end of 1993, 1.7 million conservation plans had been developed covering 143 million acres. These conservation practices should save an estimated 1 billion tons of soil each year.

55. In total, some 40 million acres are affected by salinization. Recent droughts and environmental pollution have intensified debate over water-use rights and management practices in irrigated agriculture in the arid south-west of the country. Plans have been made to improve water quality in the Colorado River, through desalinization before the River enters Mexico.

(c) Canada

56. Canada has extensive drylands and has been grappling with land degradation on the prairies since the 1930s.

57. Programming related to desertification and drought by the Canadian International Development Agency (CIDA) and the International Development Research Centre (IDRC) has been geared to respond to chapter 12 of Agenda 21 and to support the Negotiating Committee process both financially (more than US$ 2 million) and technically (legal expertise). CIDA convened and provided support to an OECD workshop on methodologies to measure funding directed to desertification control programmes, and will support OECD cooperation with the Negotiating Committee in the interim period before the Conference of Parties.

58. In consultation with stakeholders, CIDA supports specific desertification control and drought preparedness programmes, for example, on sand dune

stabilization and shoreline protection in Senegal, and integrated socio-economic and rural development programmes to promote alternative livelihoods, popular participation and a strengthening of the knowledge base in Burkina Faso and Mali. CIDA also supports capacity-building and the institutional development of subregional and national organizations.

59. IDRC support has been directed at strengthening the Negotiating Committee process in African countries, reviewing studies, analysing the lessons learned from previous desertification control projects and identifying knowledge gaps. IDRC also supports various activities related to popular participation and alternative livelihoods through focal African institutes which empower rural community-based organizations. It promotes information networks on drought monitoring, information exchange on viable methods of improving livelihoods, research on combining indigenous knowledge and traditional coping strategies with modern technologies and the formulation of national action programmes to combat desertification.

(d) Australia

60. To reinforce action already being taken, Australia is preparing a national strategy for rangeland management to complement the decade of the Landcare plan. The integrated Landcare programme for sustainable dryland development and management has been well received by the various stakeholders and externally. The approach and strategy are being transferred to other countries, for example, through FAO to countries in Asia and Latin America. In a sharing of its expertise in dryland matters, Australia is investigating with UNDP and UNEP the provision of Australian advisers to assist with the planning of national environmental strategies to combat desertification in countries of Southern and Eastern Africa. It is also working with WMO on a plan to establish a network linking the Nairobi and Harare drought monitoring centres with the African Centre of Meteorological Applications for Development (ACMAD) in Niamey.

(e) Japan

61. Japan has implemented a variety of projects to combat desertification and mitigate drought as a part of its environment-related official development assistance (ODA). These projects include afforestation cooperation projects in Senegal, the Niger and the United Republic of Tanzania; a forest resource management project in Chile to prevent soil erosion and promote afforestation; various research projects and a regional agricultural development project in the Niger incorporating verification of the effective agricultural use of surface and groundwater. In cooperation with the Government of Indonesia, the United Nations, UNDP and the Global Coalition for Africa, Japan also convened the Asia-Africa Forum for Asia-Africa Cooperation, in Bandung in December 1994. This produced the Bandung Framework for Asia-Africa Cooperation, an agreement to promote an exchange of views and experiences relating to sustainable development, which is also expected to cover the struggle against desertification.

3. Countries in transition from a centrally planned economy to a market economy

62. The Russian Federation is in the process of preparing its national report on desertification and drought. Several international conferences and workshops have been held on the problems of environment protection and the conservation of nature. Special attention was given to the symposium on desertification problems in the affected region of Ubsu-Nur. An international conference and educational courses on desertification for experts of the Commonwealth of Independent States were organized in 1994 with the support of UNEP.

63. Many newly independent republics of the former Soviet Union, both in Asia and in Europe, have extensive areas of dryland subject to desertification. Despite their other problems, many new States have undertaken measures to combat desertification at both national and subregional levels. A major subregional programme is that on the Aral Sea, which aims to stabilize the environment and improve the management of the international waters of the Aral Sea Basin, rehabilitate the disaster zone around the Sea and build the capacity of regional institutions for planning and implementing the programme. The Kalmyck Republic, within the Russian Federation, has initiated action to develop a programme to stem desertification caused mainly by overgrazing. The Desert Research Centre at Ashkhabad in Turkmenistan continues to play an active role in regional and international cooperation by working on the development of desertification mapping and assessment methodologies, training and the provision of experts for other countries in Asia. It also participated actively in the formulation of the Asian annex to the Convention

B. Summary of the experiences of major groups and non-governmental organizations

1. Major groups

(a) Subregional organizations

64. Subregional organizations were fully involved and made a substantial contribution to the negotiation process for the Convention and have since adopted timetables for the formulation and implementation of subregional action programmes. CILSS and the Club du Sahel met in December 1993 to lay down the guidelines for a regional strategy to implement the Convention, bearing in mind the lessons learned from the implementation of the Nouakchott strategy of 1985.

65. In October 1994, SADC discussed its subregional environment strategy for implementing Agenda 21, which includes desertification. It was endorsed for approval by its ministerial council in early 1995.

66. During September and October 1994, CILSS, IGADD and UMA held meetings to discuss the implementation of the Convention in their respective subregions. Action programmes have been formulated based on long-term strategies, building on existing successful plans and subregional programmes and focusing on aspects of the desertification issue that are best dealt with at the subregional level, including the sustainable development of transboundary natural resources.

Increasing cooperation between subregional organizations and with non-governmental organizations and others was a recurrent theme of the meetings.

(b) Consultative Group on International Agricultural Research

67. In response to chapter 12 of Agenda 21, various centres of the Consultative Group on International Agricultural Research (CGIAR) working in Africa, coordinated by the International Crops Research Institute for the Semi-arid Tropics (ICRISAT), have developed a collaborative project to address the problems of desert margin areas of sub-Saharan Africa. The initiative aims to design sustainable natural resource management options to combat land degradation using indigenous and modern scientific principles integrated into improved production technologies. Initial design is under way and national scientists in sub-Saharan countries have identified the major causes of degradation in their countries. The project will involve CGIAR centres, the national agricultural research systems in Botswana, Burkina Faso, Kenya, Mali, Namibia and the Niger, subregional organizations and non-governmental organizations.

(c) Regional development banks

68. The African Development Bank (AfDB) played a significant part in the negotiation process for the Convention in support of the African countries, and also in the establishment of the Network for Environment and Sustainable Development in Africa (NESDA). Environmental programmes have been restructured in line with the provisions of the Convention.

69. At the Paris ceremony, AfDB committed itself to play an active part in implementing the Convention, in line with the important role assigned to it under the provisions of the Convention, particularly in terms of integrated activities in key areas such as improving national economic environments, the sustainable use of natural resources, efficient energy use, capacity-building and sensitization. Studies of approaches to implement the Convention are being supported and the possibilities of assisting African countries to develop national and subregional action programmes to combat desertification are being explored.

70. The Islamic Development Bank will work with its member States and other intergovernmental organizations to finance specific projects under the Convention.

2. Non-governmental organizations

71. A major result of the UNCED process was the increased influence of non-governmental organizations, which came about largely through cooperative organization. For instance, the Environment Liaison Centre International (ELCI) is a network of more than 860 non-governmental organizations and community-based organizations world wide. Following on the role given to non-governmental organizations in the Convention, the levels of cooperation and joint activities between non-governmental organizations, United Nations organizations and others,

and between international non-governmental organizations and those in countries affected by desertification have grown significantly.

72. In addition to their active participation in the Negotiating Committee process and contributing to the Convention, non-governmental organizations have increased support to dryland development, while continuing to implement grass-roots programmes and further develop approaches for the more sustainable and participatory management of dryland resources. Increased emphasis is being given to empowering women and other marginalized groups, including their involvement in planning and decision-making processes.

73. More than 100 non-governmental organizations participated actively in the Negotiating Committee process and organized strategy meetings prior to the Committee sessions. As a group, they made significant contributions to inter-sessional workshops on the social aspects of desertification and international trade and desertification and to the policy dialogue on the financial means of implementing the Convention, which eventually led to the proposal for national desertification trust funds.

74. As a follow-up to the Convention, in November 1994, non-governmental organizations and community-based organizations formed the International NGO Network on Desertification (RIOD) to share the information and experience of local communities. ELCI is the secretariat and focal points are designated in all affected continents. RIOD is preparing a Community Guide to the Desertification Convention, which explains the role of non-governmental organizations and community groups in implementing the Convention. ELCI is continuing to lobby and follow up on national desertification trust funds and to develop partnerships between Governments, non-governmental organizations and community-based organizations.

75. Since UNCED, individual non-governmental organizations have shifted programme emphasis from technical solutions to focus on people and sustainable development. Programmes seek to empower local communities, especially women, to move from passive participation in resource decisions to active control over their natural resources. Pastoral development approaches are being re-examined, based on a coherent understanding of the dynamics of dry grazing lands. Attention is being given to the stability and security of rural, marginalized households and their strategies for achieving food security. Information is another focus, particularly at the community level; for example, forums have been established for grass-roots information exchange and programme development on women, environment and sustainable development, and integrated information has been documented on adaptive strategies for sustainable development, for non-governmental organizations, local communities and policy makers.

III. MATTERS RELATED TO FINANCE AND TECHNOLOGY TRANSFER

A. Finance

76. Much of the focus on financing and technology transfer for desertification control has centred on the Convention negotiation, which was expected to propose appropriate mechanisms for implementation. Existing mechanisms have continued

in use to initiate action and mobilize external support for dryland development in developing countries.

77. United Nations bodies have reviewed their financing programmes in relation to Agenda 21 and strengthened interventions to support the development of national capacities. These include Capacity 21 for UNDP, the UNEP/UNDP joint venture to support UNSO for the Sudano-Sahelian region, the FAO Technical and Economic Cooperation among Developing Countries (TCDC/ECDC) programme, the WMO/World Bank World Hydrological Cycle Observing System (WHYCOS) programme, the IFAD special programme for sub-Saharan African countries affected by drought and desertification (SPA) and the Economic and Social Commission for Asia and the Pacific (ESCAP)/UNEP/UNDP Desertification Control in the Asia Pacific Region (DESCONAP) initiative.

78. These programmes promote inter-country cooperation and emphasize the sharing of technical knowledge, skills and experiences, and the transfer of technology between countries, institutions and other organizations, through such means as networking and expert groups. Resource mobilization remains a central function.

79. One attempt to further this process was the proposal to the Global Environment Facility (GEF) Council that desertification be made the fifth focus eligible for GEF funding. Although not yet accepted, the Council agreed that desertification/land degradation would be eligible for financing in so far as it is related to the four existing criteria. In November 1994, the GEF Council considered a preliminary issues paper on land degradation strategies. It asked the GEF secretariat to prepare an operational strategy for incorporating land degradation projects into the four focal areas, for consideration at the January 1995 meeting of the Council. The request for a separate operational strategy for land degradation was a major decision, giving desertification more prominence in GEF.

80. The Conference of Parties is requested by the Convention to promote the availability of financial mechanisms and encourage them to maximize funding availability for affected developing countries. Provision of support for national, subregional and regional activities is also encouraged through various mechanisms of the United Nations system and multilateral financial institutions. The Convention includes the establishment of a global mechanism for promoting action leading to the mobilization of substantial financial resources, as well as the transfer of technology, on a grant basis, and/or concessional or other terms.

81. The regional implementation annexes to the Convention further emphasize developing countries' need for assistance in providing and facilitating access to financial and other resources and in promoting and facilitating the financing of the transfer of and adaptation and access to appropriate technologies and know-how. It is suggested that macroeconomic frameworks conducive to mobilizing financial resources be developed and that the allocation of significant resources through partnership agreements and bilateral or multilateral arrangements be continued and enhanced.

82. An early response to these responsibilities was the pledging of resources at the signing ceremony of the Convention in Paris in October. Many developed countries and the European Union announced that substantial funds would be available for action in Africa during the interim period and/or described specific programme initiatives and plans. The European Union stated that since 1992 a further US$ 434 million has been promised under the Lomé trade-and-aid agreements to fight desertification.

83. Among the developed countries, Australia announced a special contribution of $A 250,000 over three years, together with programme initiatives in support of urgent action for Africa. Denmark announced that US$ 200 million for the next fiscal year has been allocated towards a new fund for international environment and emergency assistance, targeting an extra one half per cent of GNP by the year 2004. France pledged an additional 400 million francs of bilateral financing to projects related to desertification and other areas under the scope of GEF, in addition to the 1 billion francs devoted annually to desertification control. Germany pledged an additional 5 million deutsche marks in technical cooperation committed to desertification for 1994, to start national action plans as soon as possible. Canada announced a plan to direct US$ 100 million over the next five years from existing development cooperation aid to fight desertification, especially in West Africa. Japan announced an increase from US$ 7.0 billion to US$ 7.7 billion in ODA for environmental projects in developing countries for the period 1992-1996. The United States of America will allocate US$ 500 million for current or planned projects to support urgent action for Africa.

84. The Convention also suggests that countries consider establishing national desertification funds, possibly involving the participation of non-governmental organizations to channel funds rapidly and efficiently to the local level.

B. Technology transfer

85. Since UNCED, there has been increased activity in the transfer and sharing of knowledge on cultivation technologies for fragile dryland soils, such as saline soils, and in the identification and introduction of adapted crop species. For example, UNEP, in collaboration with Australia and with participation from all regions, organized an international workshop in November 1992 on halophytes for the reclamation of saline wastelands.

86. The positive policies and developments in the Middle East have resulted in improved opportunities for the transfer of knowledge across formerly closed political divides in that region. The International Programme for Arid Land Crops (IPALAC) was initiated in 1994, which includes the collection, development and introduction of plant species adapted to dryland desert conditions and the transfer of suitable cultivation techniques. The Government of Israel, with the support of UNESCO and others (FAO, UNEP, UNDP and research institutions from Australia, Bahrain, Cameroon, Chile and China), organized a workshop in November 1994 to launch the programme, which will network research nodes in all continents.

87. There is also an active transfer of data handling technologies to developing countries and among United Nations organizations, for example, of the FAO interactive database systems and delivery applications; of geographical information systems (GIS) technology by FAO, WHO and others; and of WMO drought monitoring and early warning techniques.

88. Alternative energy utilization technologies (solar, wind, bio-gas) are being transferred. There is also more activity in the sharing of water desalinization knowledge in the Middle East, with plans for a regional desalinization research centre in Oman.

IV. RECENT DEVELOPMENTS AND EXPERIENCES IN INTERNATIONAL COOPERATION

A. Intergovernmental processes

89. The preparations for UNCED and the intergovernmental process of negotiating the Convention which has dominated the desertification agenda since the Rio Conference, have resulted in the increasing willingness of countries to join together in tackling regional natural resource management problems, as the Aral Sea and Middle East initiatives show. There has also been a growth in activities through and support of subregional organizations, such as on the transfer of experiences and technologies and on information systems. The World Bank reports increases in activities for intergovernmental projects, particularly for projects funded by GEF, for example the West African Pilot Community-based Conservation and Wildlife Utilization.

B. Organizations of the United Nations system

90. The major preoccupation within relevant organizations of the United Nations system since UNCED has been the negotiation of the Convention to Combat Desertification. Considerable resources, both human and financial, have been devoted to the process over the past two years, in relation to support to the ad hoc secretariat, to Governments in affected countries, to the definition of the technical, scientific and political issues involved and to the formulation of the texts of the Convention and the regional annexes.

91. The negotiation process itself has resulted in many changes in political and even technical perceptions. New relationships and understandings have developed, leading to a self-questioning of the role, responsibilities and programmes of United Nations organizations.

92. In accordance with the general requirement of chapter 38 of Agenda 21 for "serious and continuous reviews of their policies, programmes, budgets and activities", the organizations most concerned with desertification control have undertaken in-depth reviews of their environment-related activities, their stance on environment and sustainable development issues, their institutional arrangements and future programmes in the light of the objectives set out in chapter 38, its special requirements and the responsibilities established by the Convention.

93. Most organizations report a reorientation of their programmes related to desertification control to focus more closely on the requirements of Agenda 21 and to prepare for Convention implementation. Strategies have been prepared and responsibilities assigned to coordinate the implementation of new action plans. The latter are generally based on the six programme areas set out in chapter 12 related to desertification control, or respond to the particular specialized mandates of the organization concerned, bearing in mind the desertification dimension.

94. In response to the demand for a strengthened knowledge base and further development of information and monitoring systems, including on the socio-economic aspects of desertification, many organizations report an increase in activity in this area. Initiatives include increased research in the understanding of processes involved in climate, its variability, drought occurrence and desertification; a new interactive database for use by local people and decision makers; a new experimental network data project on river flow regimes in parts of Africa; and the development of national environmental information systems.

95. Core activities in desertification control remain soil and water conservation, land rehabilitation, afforestation and reforestation and specialized activities such as sand dune fixation. The emphasis in these projects, however, has changed over time and in response to past experience. Various project evaluations and studies have pointed to the failure of the sector approach and targeted technical solutions. It has become apparent that an integrated approach is necessary to account for the socio-economic aspects of the desertification problem and to fulfil the need for a participatory approach to project design and implementation. The top-down direction was shown not to work, since inputs from the beneficiaries were not included and because the adaptation of projects to changing local conditions requires the knowledge of the local participants themselves. Hence, the bottom-up approach has been adopted and projects are being amended or designed accordingly. In addition, the requirement for sustainability in development and livelihood has become a key component in project activities.

96. Various approaches have been attempted in the search for alternative livelihood systems in the drylands, for example a small grants programme linking poverty alleviation and environmental priorities through promoting livelihood alternatives. Another programme that previously focused on small-scale, on-farm efforts in the use and conservation of water and soil resources and on traditional dryland crops has recently expanded to also cover off-farm common property resources and the development of viable alternative livelihood systems in marginal rural areas. Again, these responses reflect the increased human focus on project design.

97. The UNCED process highlighted the need to integrate anti-desertification plans into national environmental planning. This is reflected in the increased attention to national strategic planning processes and capacities reported and, more importantly, in cooperative attempts to coordinate the various existing initiatives in this area, through a series of multi-organization harmonization meetings. New activities are increasingly being undertaken in consultation and cooperation with the other organizations active in this area. Capacity-building

at all levels has been a focus of activities in accordance with the bottom-up approach to development.

98. Several organizations report activities in drought preparedness and drought relief. These include investigative projects in climate research and early warning systems, activities to identify and prepare drought mitigation projects and map vulnerability and to improve disaster and drought mitigation skills through training; and an initiative to build capacity in drought preparedness and mitigation, involving local people in the design and implementation of their own drought response strategies.

99. The last programme area, the cross-cutting issue of encouraging and promoting popular participation and environmental education, is a basic component of most activities in the other areas, as described above.

100. With regard to cooperation and coordination within the United Nations system, the Secretary-General's call for streamlining and for a more efficient organization overall has led to reorganization and a close examination of the relationships and cooperation among the various component bodies. The demonstrated benefits of cooperation have become more apparent, especially in the light of the tendency of organizations to opt for a concentration on specific areas. Thus, UNDP has chosen to formulate activities around capacity-building for sustainable human development, FAO places its major emphasis on food security, the World Bank is now focusing on poverty, while UNEP is concentrating increasingly on environmental assessment, dissemination of information and emerging environmental issues.

101. The changing spirit towards cooperation and coordination is reflected in the increase in joint activities among two or more organizations, and with external organizations such as non-governmental organizations. These cover such fields as strategic planning, assessment methodologies, scientific aspects of desertification and environmental information systems, as well as operational field activities.

102. As indicated elsewhere, there is growing cooperation with non-governmental organizations, building on the role assigned to them in Agenda 21 in relation to activities at the country level, and with centres of excellence and academic institutions, in recognition of the cross-cutting nature of desertification control, involving the social, cultural, economic and physical management of a territory.

103. In this context, a further factor encouraging and ensuring coordination involves the linkages between the different chapters of Agenda 21. Many activities in response to one of the chapters are equally valid in relation to one or more of the other chapters. As a result, organizations not primarily dealing with desertification find themselves called upon for their specific skills, particularly in the socio-economic aspects of programme activities.

V. CONCLUSIONS AND PROPOSALS FOR ACTION

A. Conclusions

1. Major result of the United Nations Conference on Environment and Development

104. The global importance of the desertification problem, which has its origin, causes and solutions at a very local level, is now becoming more widely accepted. There is also increasing recognition that desertification and drought are closely interlinked with other global concerns such as biodiversity, food security, population growth, climate change, international waters, forestry, resource consumption patterns, trade, economics and, in particular, social and cultural issues. The linkage between chapter 12 and the other chapters of Agenda 21 is clear.

105. The adoption of the Convention was a major recommendation of Agenda 21. Moreover, negotiators explicitly framed the provisions of the Convention to take account of the objectives and activities of chapter 12. Article 2 explicitly recognizes this consistency between the two documents. It is clear, therefore, that the Convention provides the primary framework for carrying out the provisions of chapter 12. As indicated elsewhere in the present report, there are also close linkages between the Convention and a number of chapters of Agenda 21. The provisions of the Convention should, therefore, be taken fully into account in implementing Agenda 21 as a whole.

106. The negotiation of the Convention within the specified time is a major, tangible result of UNCED. It is evidence of strengthened political will; but this still has to be translated into commitment in the national and subnational operational context.

107. There are important issues that still have to be addressed more effectively. These deal mainly with (a) inadequacies and deficiencies in the knowledge base and information systems; (b) enabling environments for effective action; (c) public participation; (d) development mechanisms; (e) institutions and policies; (f) finances; and (g) division of labour and coordination of efforts at the national and international levels.

108. Although considerable emphasis has been given to some of these issues, much more attention is needed for the social and economic aspects of desertification, including resource users' rights, their fair participation in economic development, alternative economic opportunities, access to applicable technologies and credit and sustainable resource use.

2. Popular participation

109. The principle of allowing more effective participation of local people in the planning and development of their natural resources is being more willingly accepted in many affected countries. Many organizations, especially non-governmental organizations, have stepped up their participatory approaches with the inclusion of marginalized and disadvantaged groups, especially women,

in the dryland development process. The importance of preserving local peoples' knowledge of dryland management and survival strategies should be recognized; their full involvement in the sustainable development of these drylands - their homelands - needs to be ensured.

3. Economics and trade

110. The linkage between environment and economics is a subject of increasing international discussion. Dryland degradation, as an issue in its own right, is part of these discussions. The recent agreement at the conclusion of the Uruguay Round of multilateral trade negotiations should stimulate trade, but it is possible that the sustainable management of dryland environments will be more difficult to attain. While liberalization of trade would tend to give impetus to agricultural production in dryland areas, there is a concomitant danger of further land degradation owing to the expansion of agriculture in fragile areas in the absence of suitable complementary land management policies. Dryland farmers face severe competition from subsidized farmers in the North. It is necessary that the next round of trade negotiations recognize the needs of dryland populations (one fifth of the world's population) in seeking fairer market conditions.

4. Strategic frameworks

111. By the mid-1980s, the Governing Council of UNEP was already urging the inclusion of desertification control plans as integral parts of overall national socio-economic development plans. Agenda 21 and the Convention both reiterate the need for the integration of desertification control strategies and action programmes into the national policy and institutional framework. There is a need for further consolidation of various sectoral and donor-driven strategic framework plans within the overall national planning and budgeting frameworks.

5. Global awareness-raising

112. Despite the increased understanding of desertification and drought issues, there is a continuing need to raise public awareness of the issues. The global public needs to understand the importance of desertification and the value of the world's drylands and their population.

6. Partnerships

113. United Nations organizations have already taken steps to align their desertification activities in accordance with Agenda 21. Further agreements on the system-wide division of labour and proposals on further partnership arrangements between agencies (and corresponding targeted work plans) are needed. In the implementation of the Convention, these organizations could further define their roles, comparative advantages, cooperative mechanisms, level of intervention and corresponding resource allocations.

7. Increasing the knowledge base

114. Fundamental to improving understanding of the significance of desertification and drought is the need for a substantial improvement in the level of scientific knowledge of the problem. Now that there is an agreed definition of desertification, it is possible to assemble a consolidated database of available knowledge covering all spectra of the issue. A coordinated global effort is necessary to consolidate the data available in a compatible form, and to obtain a greatly improved base of information, so that a much more detailed and precise understanding of the desertification issue can be obtained. This would involve concerted activity at the national level in affected countries and the recognition by Governments of its importance. It is a cross-sectoral effort, involving physical, social, humanitarian and economic factors.

8. Further actions

115. The following additional actions are among those envisaged as necessary steps towards achieving sustainable dryland development:

(a) Recognizing that combating desertification needs an integrated and holistic, multisectoral approach;

(b) Elaborating and clarifying the linkages between desertification and drought and other conventions, especially the Conventions on Climate Change and on Biodiversity, as well as linkages with other issues, such as:

(i) Household food and energy security;

(ii) Integrated management, conservation and use of forests according to the Forest Principles of UNCED;

(iii) Land-use policies, legislation, land tenure;

(iv) Socio-economic and development policies;

(v) Development and adoption of unzealous population policies;

(vi) Education and empowerment of women and youth;

(vii) Trade policies, local and external markets;

(viii) Development of economic tools, real costs and benefits, natural resource accounting, incentives;

(c) Improving the coordination of efforts by the various partners at the national and international levels;

(d) Increasing public awareness through greatly increased dissemination of reliable information;

(e) Providing support to countries, regional organizations and non-governmental organizations for institution building (data improvement and networking, development of policies, strategies, legislation and human resources), and for empowering and ensuring the involvement of people, especially the marginalized groups;

(f) Providing of adequate funding for the interim secretariat of the Convention;

(g) Significantly involving non-governmental organizations in the implementation of the Convention and in national-level coordinating committees;

(h) Calling for new and additional funds under GEF in support of the Convention and its objectives;

(i) Establishing a well-functioning and fully supported global mechanism for financing the implementation of the Convention.

B. Recommendations

116. Because of the seriousness of desertification and drought in the drylands and of the special needs of Africa, it is recommended that the Commission on Sustainable Development:

(a) Encourage States that have not yet done so to become parties to the Convention;

(b) Urge all developed countries in the interim period to provide support to affected countries in Africa as called for in the resolution on urgent action for Africa;

(c) Urge countries and intergovernmental organizations fully to support the work of the interim secretariat in preparing for the first session of the Conference of the Parties, in view of the importance of the swift implementation of the Convention;

(d) Consider the desertification issue in the light of the objectives set out in article 2 of the Convention;

(e) Approach the subject of desertification as a multisectoral issue;

(f) Urge Governments to recognize the mutually supportive relationship between combating desertification and sustainable development.

117. Since the definitions of desertification and land degradation contained in article 1 of the Convention make it clear that combating desertification is a cross-cutting issue, it is recommended that the Commission on Sustainable Development:

(a) Indicate strongly the belief that consideration of the issues contained in chapters 10 to 18 of Agenda 21 can only be productive if the desertification dimension is taken fully into account;

(b) Emphasize that the Convention contains provisions for carrying out many of the measures proposed in the related chapters of Agenda 21, in particular chapter 18 on freshwater resources.

118. In view of the need for strengthening national capacities in relation to combating desertification and drought and of the benefits of cooperation and coordination, it is recommended that the Commission on Sustainable Development urge affected countries and their subregional/regional organizations:

(a) To take effective action to set up institutional and policy frameworks for developing, managing and implementing national strategies and action programmes, incorporating the full participation of the public, especially those most affected;

(b) To encourage Governments to improve coordination among departments at the national level in order to implement measures for combating desertification more effectively and for the sustainable use of natural resources, given the cross-cutting nature of these issues;

(c) To establish, as a matter of highest priority, the coordinating arrangements and to create partnerships with donors and national stakeholders, as called for under the Convention.

119. In order to capitalize on the benefits of cooperation and coordination and for the sake of a good division of labour, it is recommended that the Commission on Sustainable Development urge developed countries to agree on coherent policies and adequate resource allocations for fulfilling their commitments towards the implementation of the Convention.

120. Since combating desertification and drought requires a participative, multisectoral integrated approach, the Commission may wish to recommend that United Nations organizations and Governments take steps to improve cooperation and coordination, both internally and externally with other organizations and Governments, by establishing more efficient and practical coordination and harmonization mechanisms.

121. It is imperative to mobilize financial resources to assist countries to implement the Convention to Combat Desertification and chapter 12 of Agenda 21. Since resources are more likely to be available for well-conceived activities that meet both poverty alleviation and environmental objectives and because of the desirability of utilizing existing financial mechanisms for this purpose, the Commission may wish to recommend that United Nations organizations with a comparative advantage in this sphere take steps to facilitate the financing of programmes and projects in dry sub-humid, semi-arid and arid areas.

Notes

1/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ According to Food and Agriculture Organization of the United Nations (FAO) statistics on the population economically dependent on agriculture.

UNITED
NATIONS

E

Economic and Social Council

Distr.
GENERAL

E/CN.17/1995/5
10 February 1995

ORIGINAL: ENGLISH

COMMISSION ON SUSTAINABLE DEVELOPMENT
Third session
11-28 April 1995

REVIEW OF SECTORAL CLUSTERS, SECOND PHASE: LAND, DESERTIFICATION, FORESTS AND BIODIVERSITY

Managing fragile ecosystems: sustainable mountain development

Report of the Secretary-General

CONTENTS

	Paragraphs	Page
INTRODUCTION	1 - 4	5
I. GENERAL OVERVIEW	5 - 14	6
A. Mountain issues, identified gaps and opportunities for action	5 - 9	6
B. Difficulties encountered	10	7
C. Time-frame	11	7
D. Development models	12 - 14	8
II. REVIEW OF PROGRESS ACHIEVED, MAIN POLICY ISSUES AND EXPERIENCES	15 - 93	8
A. Country experiences	15 - 29	8
1. Developed countries	15 - 22	8
2. Developing countries	23 - 27	10
3. Countries with economies in transition	28 - 29	11

95-02429 (E) 150295 170295

CONTENTS (continued)

	Paragraphs	Page
B. Experience of major groups and non-governmental organizations	30 - 46	11
1. Farmers	30 - 33	11
2. Women, children and youth	34 - 40	12
3. Indigenous people	41 - 42	13
4. Non-governmental organizations	43 - 46	14
C. Matters related to finance and technology	47 - 67	15
1. Finance	47 - 56	15
2. Technology	57 - 67	17
D. Recent developments and experiences in international cooperation	68 - 93	19
1. Intergovernmental processes	68 - 70	19
2. Organizations of the United Nations system	71 - 86	19
3. Organizations outside the United Nations system	87 - 93	23
III. CONCLUSIONS AND PROPOSALS FOR ACTION	94 - 107	24
A. Conclusions	94 - 101	24
B. Proposals for action	102 - 107	26

ABBREVIATIONS

CGIAR	Consultative Group on International Agricultural Research
CIFOR	Centre for International Forestry Research
CIP	International Potato Centre of CGIAR
CIMMYT	International Maize and Wheat Improvement Centre
CNRS	National Centre for Scientific Research of France
CONDESAN	Consortium for Research and Development in the Andean Ecoregion
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
IACSD	Inter-Agency Committee for Sustainable Development
ICALPE	International Centre for Alpine Environment
ICIMOD	International Centre for Integrated Mountain Development
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
ILCA	International Livestock Centre for Africa
ILO	International Labour Organization
IMS	International Mountain Society
IUCN	The World Conservation Union
IUFRO	International Union of Forest Research Organizations
MAB	Man and the Biosphere programme
NGO	Non-governmental organization
TFAP	Tropical Forests Action Programme
TMI	The Mountain Institute (formerly Woodlands Mountain Institute)
TSS-1	Technical support services at the programme level

UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNU	United Nations University
WCMC	World Conservation Monitoring Centre

INTRODUCTION

1. The present report describes the progress made in the implementation of the aims set out in chapter 13 of Agenda 21 (Managing fragile ecosystems: sustainable mountain development) 1/ since the United Nations Conference on Environment and Development (UNCED) in June 1992, and contains a set of recommendations for action. The report was prepared by the Food and Agriculture Organization of the United Nations (FAO) as Task Manager for chapter 13 of Agenda 21 in consultation with the United Nations Secretariat and in accordance with arrangements agreed to by the Inter-Agency Committee on Sustainable Development (IACSD) at its fourth session. At the Conference, Governments recognized mountains as an important source of water, energy and biological diversity, as well as a source of such key resources as minerals, forest products and agricultural products and of recreation. It was realized that mountain ecosystems were essential to the survival of the global ecosystem and that about 10 per cent of the world's population depended directly on mountain resources, with a much larger percentage (estimated at 40 per cent of the world's population) drawing on other mountain resources, including in particular water (it is estimated that mountains are the source of about 80 per cent of the world's water resources).

2. Chapter 13 of Agenda 21 contains two programme areas for action: (a) generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems; and (b) Promoting integrated watershed development and alternative livelihood opportunities. However, while the two areas have their particular significance, in the present report they are treated together, with special emphasis on the need for an integrated ecosystems approach to sustainable mountain development.

3. The network established during the first ad hoc inter-agency meeting on chapter 13 of Agenda 21, held in Rome on 21 and 22 March 1994, has developed a set of proposals for action by United Nations organizations, as well as by international non-governmental organizations (NGOs) involved in sustainable mountain development. It has been generally agreed that a special effort will be needed to move the "mountain agenda" higher on the international and national development agendas. The above-mentioned NGOs have agreed to recognize chapter 13 of Agenda 21, as adopted by the Conference, as a basis for action and to participate in mountain development programmes in a spirit of cooperation with Governments. With the encouragement of the United Nations inter-agency group on mountains, a global conference of intergovernmental and non-governmental organizations is to take place in February 1995, in addition to the series of regional intergovernmental consultations that began in December in the Asia and Pacific region and will continue in Latin America and the Caribbean in April 1995. Consultations in Africa, Europe and North America could take place later in 1995 and in 1996.

4. Although many important urban-based development activities occur in mountains, the present report concentrates mainly on new approaches concerning the integrated management of the natural resource base, the interaction between rural mountain populations and resources in terms of sustainable livelihoods,

and efforts to ensure environmentally sound and sustainable development of mountain areas.

I. GENERAL OVERVIEW

A. Mountain issues, identified gaps and opportunities for action

5. Mountain ecosystems and environments are of critical importance as water stores. They are often physically unstable (subject to earthquakes, landslides and volcanic and torrential phenomena) and sometimes plentiful in mineral resources. Biologically, mountain ecosystems are characterized by altitudinal zonation and microclimatic "niches" generating a rich but fragile biological diversity. Characteristically, human communities in mountains are self-reliant and have a detailed knowledge of the ecosystems on which they depend and of how to utilize them. Cultural diversity and richness parallel the biological diversity, and the specific sacred and/or religious significance of the mountains themselves is often a prominent cultural feature.

6. The complexity and diversity of mountain ecosystems make it difficult to generalize. The need for a comprehensive, interdisciplinary approach to sustainable mountain development with the effective participation and empowerment of mountain people has been recognized, as has the need to further increase awareness at all levels of society of the importance of mountain ecosystems, together with their problems and potential. The prevalence of absolute and relative poverty in mountainous regions and the downstream consequences of the degradation of mountain ecosystems are recognized as major reasons for mobilizing international efforts to assist countries 2/ to formulate and implement strategies for sustainable mountain development. A priority will be to develop and test potentially replicable models for rural poverty alleviation 3/ that can overcome the obstacles facing populations in upland areas and ease their transition to more sustainable livelihoods. These should build on local knowledge, capacities and opportunities, suggesting in turn that for mountainous regions, multiple adaptive models are likely to be more successful than approaches based on a uniform development paradigm.

7. There is a general lack of suitable institutional mechanisms to ensure an integrated approach, in view of the complexity of mountain ecosystems and the socio-economic issues at stake. In addition, there is scope for improved policy and legislation for mountain areas, as well as for training and capacity-building, to make the implementation of chapter 13 of Agenda 21 possible. The need for long-term projects and programmes and long-term monitoring of their environmental benefits is emphasized.

8. Linkages between traditional knowledge and practices and their effect on ecosystems should receive more attention. Linkages between data collection and research, and the utilization and application of results need reinforcement. A recurrent issue is the plea for more action-oriented data collection and research linked to specific pilot areas where different government agencies and non-governmental organizations could coordinate interventions. Research should also be more responsive to the needs and aspirations of mountain populations.

Improved information systems, networking and accessible databases have been identified as a priority area for action.

9. Traditionally mountains have had their natural and human resources drained to benefit the lowlands. At present, however, mountainous countries can support their upland programmes to a greater degree by channelling some returns from mountain-derived benefits (such as hydropower, mining, forestry, tourism), where appropriate, back into the uplands. The empowerment of mountain communities, including increased control over local resource conservation and management, in order to become more directly involved in income-earning activities, is seen as a necessary step in a strategy for sustainable mountain development.

B. Difficulties encountered

10. One of the main difficulties encountered so far is the failure to see mountain areas as something special, with a potential of their own and therefore worthy of special attention. This is reflected in the lack of mountain programmes of agencies, but maybe even more so at the national level, where it is still rare to find departments, programmes or legislation dealing in a comprehensive way with mountain issues. More often than not mountain areas and populations are at the "thin end" of general national programmes of education, health, infrastructure and the like, mainly because the cost per person of providing such services in remote mountain areas is above the national average and therefore seen by sectoral agencies as uneconomical, and because of inadequate recognition of the value of mountain natural resources. Hence in addition to ongoing sectoral efforts there is a need for comprehensive programmes, at the national and international levels, designed specifically for mountain areas or, even better, originating in mountain areas.

C. Time-frame

11. Mountain cultures are old, sometimes very old. National and international programmes in the mountains have been ongoing for decades. It should be stressed that international consultations on sustainable mountain development as a follow-up to UNCED will take time. The "mountain agenda" will therefore need special emphasis in order to realize the national planning, legislation and investments called for, and even then only partial realization of this critical agenda can be envisioned. Emphasis should therefore be placed on the formulation and installation of flexible, long-term, support mechanisms, with the mountain populations themselves playing the lead role and determining the timetable. However, in such areas as poverty alleviation, management of natural resources and capacity-building, significant progress and greater support is urgently needed.

D. Development models

12. The Consortium for Research and Development in the Andean Ecoregion (CONDESAN), has provided a novel approach to mountain development research by looking at mountain issues in a comprehensive ecosystemic way and being open to different partners in a collaborative effort. Working at the local level, the approach is that of an "open consortium", involving a group of Andean government agencies working together with one or several NGOs under the general coordination of an informal "committee" in which all participating organizations are represented.

13. The Tropical Forests Action Programme (TFAP) has gone through a series of revisions and modifications since being launched in 1985, but has proved to be a survivor. It has so far involved more than 90 developing (not necessarily tropical) countries. It has developed mechanisms for participatory programme development and public debates concerning the contribution of the forestry sector to national development, which would be suitable for the formulation of mountain action programmes as well.

14. In addition to these two examples, a wealth of ongoing and recent operational models for community-based natural resource conservation and management are being introduced and tested. These include programmes of national and international NGOs, such as the King Mahendra Trust for Nature Conservation (Nepal), the Aga Khan Rural Support Programme (Pakistan) and The Mountain Institute (TMI) (Himalayas and Andes); Intergovernmental organizations, such as FAO, the International Fund for Agricultural Development (IFAD), the International Centre for Research in Agroforestry (ICRAF) and the International Centre for Integrated Mountain Development (ICIMOD); and many national Governments, with or without external support.

II. REVIEW OF PROGRESS ACHIEVED, MAIN POLICY ISSUES AND EXPERIENCES

A. Country experiences

1. Developed countries

15. In mountain areas, the main challenges faced by industrialized countries relate to depopulation, abandonment of sustainable systems of natural resource management (e.g., forests and mountain pastures), the increasing use of land for recreational activities, and the provision of protection from natural hazards.

16. Depopulation of mountain areas - in Europe, most notably in France and Spain - is often a result of the creation of economic opportunities in the lowland industrial and urban centres, combined with the failure to generate sufficient employment and improved livelihood opportunities in the mountains. In Australia, Canada, New Zealand and the United States of America, for example, "modernization" in pastoral management has led to a withdrawal from marginal range land and pasture land that are no longer needed or have become uneconomical to graze.

17. The process of depopulation is at present being reversed by important investments in infrastructure for tourism and recreation. Some mountain areas have become attractive and expensive ski resorts (Aspen, Colorado, United States of America; Cortina d'Ampezzo, Italy) or popular to the point where artificial snow and light (in Japan for example) must be provided for skiers 24 hours a day in order to meet the demand. This in turn is leading to the need to construct super highways, hotels, ski lifts and so forth and to reshape mountain slopes to make ski runs, thereby creating new environmental pressures.

18. The shift from peasant agriculture to the tourist industry has led to a jump in demand for safety measures against natural phenomena. The original population would remain indoors during a blizzard and would be familiar with the snow and weather conditions and the increased risk of avalanches. The majority of mountain tourists however, require roads to remain open at all times, and are unaware of the rapid weather changes in mountains. The investments in torrent and avalanche control measures to protect visiting tourists are many times greater than those needed to protect the original population.

19. At the same time it has become increasingly difficult to establish and maintain stable forest and range vegetative cover with adequate protective functions. Many mountain areas in industrialized countries were artificially afforested or reforested in the nineteenth century. Today these plantations and the remaining more or less natural forests suffer from lack of silvicultural interventions, overmaturation and inadequate control of excessive wildlife populations (which, in addition to being a generally uneconomical activity, is not appreciated by the general public), and new environmental conditions such as air pollution and the threat posed by climate changes.

20. In view of the perceived threat to mountain forests, the European countries participating in the Strasbourg Ministerial Conference on Forest Protection in Europe (1990) adopted a resolution on adapting the management of mountain forests to new environmental conditions. This has led to closer collaboration among scientists, practitioners, administrators and legislators on the protection and management of mountain forests, at both national and international levels, and to a review of legislation and increased funding in some countries.

21. So far, however, chapter 13 of Agenda 21 has not had a significant direct influence on policies and programmes of developed countries. However, Japan enacted the "Law concerning the Promotion of the Improvement of Basic Conditions of Agriculture, Forestry and other Businesses in Hilly and Mountainous Areas" in June 1993, and Italy enacted the "New Law for Mountain Areas" in January 1994. There is an increasing understanding in industrialized countries of the need for maintaining mountain populations where they live, in order to ensure sustainable natural resource management and production systems (through subsidies and provision of infrastructure and services), preserve mountain cultures and traditions and prevent and combat forest fires.

22. Support for national development agendas had not yet materialized. It is expected that the regional intergovernmental workshops planned in preparation for a proposed world conference on sustainable mountain development in 1997 (see para. 75 below) will alert Governments and national agencies to the needs and

potential for special national mountain agendas. So far chapter 13 of Agenda 21 has received very limited attention at national level.

2. Developing countries

23. Two conditions make urban migration away from the mountains in developing countries very different from urban migration elsewhere. First, the weak economies of developing countries cannot absorb migrants, many of whom end up in peri-urban slums, and secondly, mountain population densities remain high (relative to carrying capacity and conservation needs) and in many cases are growing.

24. Developing country institutions dealing with mountain development are new compared with, for example, some of the European torrent and avalanche control services dating back more than 100 years. In addition they are usually understaffed and lack adequate long-term funding.

25. Exceptions to this general rule may be found in recent developments in Colombia and Lesotho. In Colombia, the Regional Autonomous Corporations, created by Act No. 99 of 1993, have been made responsible for environmental management. The great majority of these Corporations are situated in the Andes, thus providing a high degree of autonomy to the mountain areas of the country. In Lesotho, the Highland Water Development Scheme, which involves the construction of four major dams and water conduits for the sale of water to South Africa constitutes the most important investment and potential sustainable income earner for the country, which is all mountainous. The state of Himachal Pradesh in India has made significant progress in economic development by transforming a subsistence food production economy into a market economy based on opportunities for horticultural development in a mountain environment.

26. Several developing countries have made significant progress in participatory rural development and watershed management in the uplands, compared with the industrialized countries in temperate zones. The main reason is that the mountain areas in tropical and subtropical countries are often densely populated in areas where farming, even at altitudes higher than 3,000 metres above sea level, is still possible. The participatory techniques in community forestry, soil and water conservation and watershed management include grass-roots participation and bottom-up planning methods, which are currently being applied in a large number of programmes in a variety of situations. 4/

27. In general, although a wide range of activities are ongoing in mountain areas in developing countries, few if any, can be considered as being initiated or strengthened as follow-up to chapter 13 of Agenda 21. On the other hand, several initiatives, although not a direct follow-up to chapter 13, have the potential to become the first steps towards a comprehensive "national mountain agenda". The Government of Viet Nam is developing a strategy for the uplands and watersheds inhabited by ethnic minorities. Other countries have relevant past experiences such as Ethiopia (Highlands Rehabilitation), Morocco (rural development in the province of Azilal), and Guinea (Fouta Djallon). Much remains to be done, however, to create awareness among developing country

planners and policy makers of the potential for mountain development and the specific requirements related to mountains.

3. Countries with economies in transition

28. The problems related to mountain areas of countries with economies in transition are in many ways similar to those of industrialized countries. Urban migration and neglect of forest management interventions, however, are further exacerbated by the very high levels of air pollution, structural changes that have affected institutional capacity, and limited experience with multisectoral participatory planning.

29. As a follow-up to the Strasbourg and Helsinki Ministerial Conferences on Forest Protection in Europe, the Czech Republic has convened two international meetings on the protection of watershed forests affected by air pollution. In 1993, acting on the recommendation of those meetings, the Government of Poland organized a national conference on environmental threats to the Western Sudeten forests. A proposal has been made to establish a centre for the restoration of degraded mountain environments in Hercynian mountains.

B. Experience of major groups and non-governmental organizations

1. Farmers

30. Farmers in the mountains include members of indigenous communities and subsistence farmers practising shifting cultivation. There are small-scale family farms, medium- and large-scale plantations (forest, fruit trees) and livestock farms and enterprises. Geographically consolidated mountain farm units with legal title to land are relatively rare. Instead, the income of the farm family is generally based on a great variety of activities, including livestock, mixed cropping from several small scattered plots, gathering of forest products, hunting and fishing, off-farm employment, cottage industries and handicrafts and tourism.

31. Because of the multi-faceted sources of income of mountain farmers, traditional sectoral extension services have not usually reached them, either because of their remoteness and scattered locations, or because the production units in each production line (coffee, tea, grains, livestock, fruit) are considered too small. In addition, because of the generally insecure income and land tenure situation, they have not usually qualified for normal credit schemes. Mountain farming furthermore relies on the exploitation of highly variable and complex ecological niches, where local knowledge is often superior to what extension agents can offer based on research and experience derived from extensive lowland farming systems. Without increased research geared to their specific requirements (such as the work carried out by the International Potato Centre (CIP) of the Consultative Group on International Agricultural Research (CGIAR), among others), mountain production systems are unlikely to benefit from further extension services.

32. Some progress is being made to overcome the above problems through special upland integrated development programmes involving group credits, multi-purpose extension agents at the village level, forest occupancy agreements, farmers' associations and the like. Much needs to be done, however, to further develop promising experiences of past and existing pilot schemes and demonstration projects, and apply the lessons learnt.

33. The dramatic increases in agricultural production following the "green revolution" and the privatization of agriculture in countries with centrally planned economies have not significantly benefited mountain farmers. The agricultural services and secure land tenure available to lowland farmers are generally not available to upland farmers, whose needs are different. Much of the green revolution technology does not work properly in uplands and in areas lacking improved access. Although a few practices, such as stall feeding of animals, planting of leguminous trees and vegetative barriers against erosion, have general application, local solutions of an integrated nature are usually required.

2. Women, children and youth

34. The number of migrant labourers originating in mountain areas - practically every family in the Atlas Mountains of Morocco and in the Maloti Mountains of Lesotho has a male family member working elsewhere - and the high birth rates in some already densely populated mountain areas (the Andes and the Himalayas in particular) make women a particularly important group to be involved in the design and implementation of mountain development programmes.

35. Frequently, when the male head of household is away, the women who are left behind to manage the family, the animals and the land do not have the necessary authority to make decisions. In other situations, women cannot participate in meetings away from the home or find it impossible to face the prospect of further investment of their time and efforts because they are already overloaded with responsibilities.

36. Some Governments and development agencies are starting to address these issues by making sure that women participate in programme design from the very early stages, although they often fail to make adequate provision for the additional initial efforts, and therefore costs. On the other hand, mountain women, once organized, and perceiving that they are able to benefit, are often very active in development activities despite their busy schedule. Increased sensitivity to gender issues among development workers and experts is urgently required.

37. The FAO/Italy Interregional Project for Participatory Upland Conservation and Development commenced work simultaneously in five countries in 1991 (Bolivia, Burundi, Nepal, Pakistan and Rwanda). In all cases the international project design team consisted of a male and a female member, and had a period of three months in which to design the project, in consultation with the watershed populations following a participatory rural appraisal in order to ensure adequate representation by all groups. During the first two-year phase of the programme, this led to a series of local initiatives, which during the following

three-year phase are being closely monitored and are gradually finding their niche in the evolving multi-stakeholder plan for the watershed. This process represents a complete turnaround from traditional regional planning by government agencies in order to define action programmes often seen as of low priority by the local people.

38. The general situation remains, however, in which mountain families are split for long periods because of the need for income from outside employment. Young people are leaving the mountains to look for a better future elsewhere or are involved in such activities as herding, mining or forestry, which take them away from home for extended periods. Children at an early age are forced to attend to grazing livestock, fetching water, fuelwood and fodder, and looking after younger siblings, instead of attending school (if a school exists). As a result, school drop-out rates are exceedingly high in mountain regions. The challenge in basic education programmes is to adopt approaches that recognize these realities and design programmes that are relevant to the local situation. Not enough has been done to help children and youth to recognize the potentials and constraints of their environment and to take action, together with teachers and parents, for achieving a better livelihood.

39. Although the World Bank in one of its recent annual reports has identified rural women in developing countries as the investment target with the highest potential, financial and other allocations to women, particularly to women in the mountains, remain totally inadequate. The difficulties and obstacles to achieving a greater role for mountain women, a greater contribution from them and their overall participation are formidable. Girls are not encouraged to pursue education beyond primary school and, because of their multiple responsibilities, often remain illiterate as well as culturally constrained in making their opinions known when men are present. Many mountain women speak only the local language, which is often not the official language of the nation let alone an international language. The recommendations of the International Conference on Population and Development specifying measures to be taken for the empowerment, equity and equality of women, and to eliminate discrimination against the girl child, represent the most recent international agreements concerning the status of girls and women. 5/ They should also be implemented in mountain areas.

40. While the involvement of mountain women in the process of achieving sustainable development is strategically important and can be cost-effective, in many cases completely new ways of working with communities are needed. Participatory methods in soil conservation and community forestry increasingly include drawing, dancing and performing plays, which enable women to express their opinions and needs. Further development and large-scale application of such methods are seen as indispensable if real progress is to be achieved.

3. Indigenous people

41. Armed conflicts and other problems involving mountain communities have been given extensive coverage by the mass media and with it some attention to the issue of mountain development as well as the situation of indigenous mountain populations. However, although armed conflicts make more headlines and indeed

represent immense human suffering, it is probably the more gradual encroachment on the mountains by displaced lowland people that has had the most serious impact on indigenous mountain communities over the past four decades. The devastating effects of short-fallow shifting cultivation are often not the work of mountain people, but of landless lowland farmers moving farther up into mountain areas as squatters in search of "unoccupied" land and applying lowland production techniques unsuited to complex upland realms.

42. Sustainable mountain development in many places has to start with a change in attitude towards indigenous people and in the way they are treated. Their right to the land should be recognized, as should their knowledge of the special living conditions and natural resource management in the mountains. They should be protected from exploitation by drug dealers, tourist operators and guerrilla movements. In many countries this involves extremely sensitive issues. However, some progress is being made involving official granting of land titles, granting of partial autonomy, teaching in local languages and so forth. New development models involving indigenous mountain people are appearing; they are badly needed.

4. Non-governmental organizations

43. Non-governmental organizations, including the International Mountain Society (IMS), and people with close NGO contacts working in intergovernmental institutions such as ICIMOD were instrumental and in some instances played a decisive role in ensuring that a special chapter on mountains (chapter 13) was included in Agenda 21 and approved by UNCED. This is recognized in chapter 13, in which it is stated that national Governments and intergovernmental organizations should:

> "(a) Coordinate regional and international cooperation and facilitate an exchange of information and experience among the specialized agencies, the World Bank, IFAD and other international and regional organizations, national Governments, research institutions and non-governmental organizations working on mountain development;
>
> (b) Encourage regional, national and international networking of people's initiatives and the activities of international, regional and local non-governmental organizations working on mountain development, such as the United Nations University (UNU), the Woodlands Mountain Institute (WMI), the International Centre for Integrated Mountain Development (ICIMOD), the International Mountain Society (IMS), the African Mountain Association and the Andean Mountain Association, besides supporting those organizations in exchange of information and experience". 6/

44. International NGOs, such as the World Conservation Union (IUCN), support national and local activities ranging from the formulation of national environmental and forestry action plans, and the establishment of protected areas and national parks, to indigenous people and local user groups, among others. This work is carried out in collaboration with Governments and intergovernmental organizations, as well as with national and local NGOs.

45. National level NGOs play an increasingly important role in mountain development programmes. The Aga Khan Rural Support Programme in Pakistan, the King Mahendra Trust for Nature Conservation in Nepal, and the Fundación Peruana para la Conservación de la Naturaleza in Peru are but a few examples.

46. The number of local NGOs supporting mountain communities has greatly increased, as recognition of and hence support for, their role has gained ground. The increased flow of information to and between local level NGOs has improved the quality of their activities and, in many instances, has helped to clarify their partnership role in development efforts alongside decentralized government agencies.

C. Matters related to finance and technology

1. Finance

47. Sustainable mountain development is still almost entirely financed on an ad hoc project rather than programme basis. Mountains have not yet been the object of special financial mechanisms, although such arrangements would be entirely justified. Mountains do not have an equivalent to the TFAP or an international convention with a financing mechanism such as the Global Environment Facility (GEF). The many attempts to link the construction of large dams and the sale of hydroelectricity and irrigation water with the financing of integrated watershed conservation and development have remained largely frustrated. Recently, however, both the Inter-American Development Bank and the World Bank have become increasingly interested in environmental issues related to natural resources conservation (forests and water) in watershed and mountain areas.

48. Mountain areas are very often poor, not because they do not produce, but because they do not obtain a fair price for their products and services. These include water, forest products and services, tourism and recreation, mining, special upland crops, fruits and animal products (ranging from milk and cheese to clothing and carpets).

49. One of the main sustainable sources of income for mountain areas would appear to be based on new developments concerning water tariffs. Lesotho is at present engaged in a major highland water scheme that will enable the country to sell water to South Africa. This will be one of the first cases of a major financial arrangement in which the value of water as a scarce natural resource will be recognized. Most existing water tariffs are based only on the need to recover the costs of dam construction and delivery systems for example, water being considered a free - unlimited - natural resource.

50. Colombia has for several years applied a financial mechanism for watershed management and upland rural electrification based on a special tax of 4 per cent (now changed to 6 per cent) on the bulk sale of hydroelectricity.

51. At the national level, a new and hard look needs to be taken at the overall flow of resources and services to and from mountain areas, including water, forest and range products, labour, and government services. New or revised

water tariffs, forest and mining royalties, grazing rights and leases, marketing of medicinal herbs and other non-wood forest products, fees for access to national parks and licences for tourism operations are all possible income earners for development action benefiting mountain communities, which would in turn allow these communities to invest in, and not receive as government hand-outs, housing, communication, roads, education and nutrition.

52. Mountain areas can benefit, and in some cases are benefiting, from programmes financed by GEF. GEF, however, is not at present oriented towards mountain development as such, although the international conventions on climate change and biological diversity are important in relation to mountain areas. Other categories eligible for GEF financing, such as international waters and land degradation, are often also pertinent to mountains. Further consideration should be given to financing relevant aspects of mountain development programmes by GEF or other financial mechanisms.

53. In relation to Capacity 21 the special programme of the United Nations Development Programme (UNDP) for strengthening country capacity for the implementation of UNCED decisions), the creation or strengthening of regional and national capacity for the identification and formulation of sustainable mountain development programmes is badly needed.

54. Technical support services at the programme level (TSS-1), a new financial mechanism for UNDP-financing of technical support provided by United Nations specialized agencies, is a potentially useful mechanism for the formulation of mountain development programmes. A UNDP/FAO TSS-1 project in Viet Nam on Watershed Management and Ethnic Minorities, has been useful in improving the design of participatory watershed management projects.

55. Whether it be done in relation to GEF or as part of TFAP on Capacity 21, for example, there is a real and urgent need to define and create special financial facilities for sustainable mountain development. Such financing need not necessarily involve huge amounts of funding but should be long term, dependable and flexible. As the present report demonstrates, many national and international organizations have programmes in mountain areas, and in fact a great deal of money is already being spent on activities involving mountain areas. What appears to be needed is a more systematic approach to investment in mountain areas - in short, programmes involving mountains should be supplemented with "mountain programmes".

56. As a starting point it is proposed to establish one or several "mountain facilities", as small grants funds or multi-donor trust funds, for example. This would allow mountainous developing countries to identify action required under a "national mountain development action programme" and to seek international support for the implementation of such a programme. In the immediate future, increased international funding would be needed to establish pilot projects under such national programmes and significantly increase support for applied and operational research in mountain areas, national and international networking, communication, exchange of experiences and the like. Long-term commitments might be generated through the formulation and negotiation of a non-legally binding mountain charter and through regional or subregional mountain conventions.

2. Technology

57. Mountain areas have benefited from the preparation and implementation of national forestry master plans or national forestry action plans in the framework of TFAP, the Man and the Biosphere (MAB) programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO), national environmental action plans and the FAO International Scheme for Conservation and Rehabilitation of African Lands, for example. However, without a specific focus on mountain issues, mountain areas often find themselves at the back of the queue, with the possible exception of forestry activities, when programme implementation gets under way because of the difficulty of access, lack of basic information (soil surveys, socio-economic parameters) and the need for local comprehensive solutions based on slow participatory processes.

58. Available sources of information on appropriate technology to promote the sustainable development of mountain areas include libraries and databases of FAO, ICIMOD, CIP and other centres of CGIAR, and the World Conservation Monitoring Centre (WCMC). The existing information is accessible to, but not widely disseminated in, developing countries.

59. Road construction in mountain areas, although recognized as a major environmental problem, is still of an unsatisfactory quality in most developing countries. The difference between construction standards of mountain roads in industrialized countries and those in developing countries is greater than would be expected from the differences in costs. The situation is compounded by the fact that poorly constructed mountain roads usually require much higher maintenance costs, and are often ecologically and even culturally damaging.

60. Mining in mountain areas, while potentially an important income-earner, has a history of negative environmental and social impacts. Often mountain communities do not have the necessary financial and technical capacity to establish and manage mining operations, and yet as labourers, mountain people suffer the adverse health impacts of hazardous working conditions, as well as the consequences of the strong fluctuations in demand and prices of metals and minerals on the world market. Progress is needed in three areas: ensuring that an increasing share of mining royalties benefits the local populations; increased social security and health benefits for mining workers; and the mitigation of environmental impacts of mining operations.

61. Urban development in the mountains presents special challenges regarding water supply, air pollution and sewage and waste disposal, among other things. Lack of space may force construction on unstable sites or in areas that should be conserved for water supply catchments on routing of flood waters. This in turn may increase the adverse impact of phenomena such as landslides, mudflows, flash floods or prolonged drought.

62. Traditional irrigation technology in mountain areas has been eclipsed by modern dam construction and the rapid development of large downstream irrigation schemes, generally inappropriate for mountain areas. There is an urgent need to rediscover and re-apply such traditional technologies as the Andean irrigation techniques developed by the Incas as well as mountain civilizations in other regions. Generally speaking, irrigation in the mountains, based on small-scale

appropriate technology, is far more sustainable than the large-scale irrigation schemes in hot climates downstream, with the possible exception of the flood-irrigated lowlands in monsoon climates in Asia.

63. A major development in government policy concerning mountain communities is the increased understanding of the importance of local control over natural resource management and security of resources, especially land tenure, as the main incentives for investment in environmentally sound technologies and improved land husbandry. Much needs to be done, however, before the confidence mountain people lost because of past policies of sweeping nationalizations, concessions to outsiders with limited control and punitive attitudes towards small farmers practising hillside agriculture can be completely restored.

64. Tourism in mountain areas is still far from fulfilling its potential contribution to the local mountain economies. Positive examples exist in Austria (Tyrol) and in Italy (Trento Autonomous Province) and other mountain areas where the benefits of tourism have had a direct impact on the local household economies, and have practically eliminated poverty in such areas. In other areas, tourism has had severe social and cultural as well as ecological impacts. Bhutan is seeking to keep tourism within ecologically and culturally "safe limits" by, among other things, restricting the number of visitors. Regarding developing countries in general, it is worth remembering that (a) not all mountain areas benefit from tourism - it cannot, therefore, be considered a solution available to all mountain communities - and (b) institutional and financial mechanisms are usually insufficient to ensure local participation in and control over the "tourist industry" in the community.

65. While it is true in general that development, in order to achieve sustainability, should take a new and careful look at traditional cultures, practices and skills, this is particularly so in mountain ecosystems and cultures. The attraction of mountain tourism is mainly based on two aspects: the mountain landscape and the culture of the people. The cultural knowledge of mountain people includes engineering (construction of houses, trails, bridges, terraces, irrigation canals, water harvesting and spreading systems); animal husbandry (sheep, goats, camels, yaks and llamas and their products, including clothing, carpets and cheese), traditional dress, dances, songs, musical instruments; rules and regulations for local government and land and water allocation; traditional medicines, medicinal herbs; forest and range products, including a wide range of food sources (mushrooms, berries, roots, leaves, tubers). Sustainable development of mountain ecosystems must build on this knowledge, bearing in mind three aspects: the richness of accumulated traditional mountain cultures; the rate at which this knowledge is disappearing; and the need for the application of state-of-the-art technology (in communication, mountain engineering, energy, risk mapping and early warning systems, local resource management and local government) to enable mountain communities to make a "leap forward", applying modern technology with as much as possible of the traditional culture still intact.

66. Some progress has been made. Government and development agencies are increasingly aware that the limiting factors in sustainable mountain development are not only lack of "assistance" (technical, medical, food), but also lack of "empowerment" (land titles, local autonomy, generation of income). Some

Governments have not only restored land titles to indigenous mountain communities, but have also paid compensation for past damages (in the case of the Pueblo of Zuni in the United States of America, for example).

67. A wealth of new research collaboration involving cooperative arrangements between international institutions and local research organizations has appeared in recent years. CONDESAN is one example. Others include the use of Worldwatch Institute volunteers in mountain ecology research in Eastern Europe; and the work carried out by TMI in Bolivia, China, Nepal and Peru; the collaboration between the United Nations University (UNU) and IMS and the establishment and strengthening of regional mountain associations. On the intergovernmental side, the creation of ICIMOD in 1983, the recent establishment of the Centre for International Forestry Research (CIFOR), at Bogor, Indonesia, the African Highlands programme of ICRAF and the special emphasis on mountains in the programmes of CIP open up new possibilities for support for local mountain research.

D. Recent developments and experiences in international cooperation

1. Intergovernmental processes

68. Several European countries are in the process of revising their forest laws and regulations, especially regarding mountain forests. The Strasbourg Ministerial Conference on Forest Protection in Europe (1990) adopted a resolution on adapting the management of mountain forests to new environmental conditions. A permanent institutional mechanism for follow-up to this resolution, coordinated by Portugal, has been found in the FAO European Forestry Commission Working Party on the Management of Mountain Watersheds. This Working Party, established 42 years ago, with a broad mandate for integrated development in mountain areas in Europe, has the potential of becoming a useful regional vehicle for various aspects of chapter 13 as well.

69. The Alpine Convention, including a Protocol on Mountain Forests, has been negotiated and is now being ratified by Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia, Switzerland and the European Union. The Council of Europe is preparing a "European Charter for the Mountain Regions".

70. As recommended by the first ad hoc inter-agency meeting on chapter 13 of Agenda 21 (Rome, March 1994), a series of regional intergovernmental consultations on the follow-up to chapter 13 are to take place during the period 1994-1996. ICIMOD organized the Regional Conference on Sustainable Development of Fragile Mountain Areas in Asia in December 1994. The regional meeting for Latin America and the Caribbean is to be organized by CIP in April 1995. The regional meeting for Africa is tentatively scheduled for October 1995.

2. Organizations of the United Nations system

71. The agencies and organizations present at the first ad hoc inter-agency meeting had generally one thing in common: they all had important activities in

mountain areas but no mountain programme as such. This is especially true for the United Nations organizations including FAO, IFAD, the United Nations Environment Programme (UNEP), UNESCO, the United Nations Children's Fund (UNICEF) and the World Bank, with the exception of UNU, and for the International Union of Forest Research Organizations, an NGO. Organizations with a focus on mountains are those created around mountain issues. They include ICIMOD and CIP and such NGOs as IMS and TMI. Among institutions with a significant interest in mountains, but not present at the inter-agency meeting are IUCN (which has had a Mountain Initiative since 1991), the International Development Research Centre (IDRC), the International Academy of the Environment, regional international development banks, regional mountain associations, ICRAF and UNDP.

72. The organizations present at the inter-agency meeting agreed to establish an E-mail Network on Mountains, as called for by IACSD. This has since been extended to constitute a more complete group of international organizations concerned with the follow-up to chapter 13.

73. Based on the recommendation of the inter-agency meeting, TMI convened an NGO Planning Workshop on the Mountain Agenda in West Virginia, United States of America, from 22 to 26 July 1994.

74. FAO has established a Steering Committee on Environment and Sustainable Development to, among other things, coordinate follow-up for the chapters and activities of UNCED for which FAO is responsible as Task Manager. For chapter 13, a focal point in the Forestry Department has been designated and an Interdepartmental Mountain Group has been established with the participation of nine divisions in addition to the Forestry Department.

75. The first action by FAO, in its role as Task Manager, was to convene the ad hoc inter-agency meeting on chapter 13 (Rome, 21 and 22 March 1994). The meeting was attended by representatives of 13 agencies and non-governmental organizations. 7/ The meeting agreed that it would be necessary to make a special effort to move the issue of fragile mountain ecosystems and the "mountain agenda" higher on the international and national development agendas. It was also noted that no readily available or additional resources had been earmarked for immediate action, as called for in chapter 13. The meeting therefore proposed a series of activities aimed at raising awareness and moving mountain issues higher on the international development agenda. FAO, as Task Manager, was requested to seek donor support for preparatory consultations within a steering committee, as well as a series of regional workshops leading to a world conference on sustainable mountain development to be held in late 1995 or early 1996 (now proposed by FAO for 1997). NGOs were encouraged to establish cooperative mechanisms among themselves for the further development of chapter 13 and to make proposals to the Commission on Sustainable Development at its third session, in April 1995.

76. Examples of past and ongoing action in mountain areas carried out by intergovernmental organizations are given below.

77. Within the CGIAR system, CIP has been designated to coordinate the follow-up of chapter 13. CONDESAN is a participatory research consortium for

the identification, promotion, implementation and monitoring of collaborative activities, including training and information functions. INFOANDINA is the communication and information exchange system of CONDESAN, reaching 70,000 people world wide.

78. FAO is assisting a large number of mountainous countries by providing policy advice, technical assistance and training. This includes programmes on people's participation, with particular attention to the role of women. Sophisticated methodologies have been developed - for example, to match crops to different ecological conditions and to manipulate the vast amount of data on soils, climate and vegetation of mountain areas. Participatory approaches are being developed in soil conservation and land rehabilitation, community forestry and watershed management and other activities related to upland conservation and development in mountain areas. FAO's Agricultural Services Division together with ICIMOD organized the International Workshop on Evolution of Hills and Mountain Farming Systems: Sustainable Development Policy Implications in Nepal in October 1994. A similar meeting will be organized in Ecuador in 1995 in collaboration with CIP. As Task Manager for chapter 13, FAO has established a focal point in its Forestry Department and set up an Interdepartmental Working Group. Pursuant to the recommendation of the first ad hoc inter-agency meeting, FAO's Director-General has called for donors to support the proposed world conference on sustainable mountain development in 1997.

79. The United Nations Centre for Human Settlements (Habitat) is becoming involved with mountain issues through projects dealing with water resources management and the mitigation of flood disasters. A publication on human settlement issues in the sustainable development of mountain areas is planned.

80. ICRAF is launching the African Highlands Ecoregional Initiative, with the overall goal of helping communities in the densely populated and intensively cultivated highlands of eastern and central Africa, in order to alleviate poverty and related social and environmental problems. About 10 national and international research institutions are involved in this project including the International Maize and Wheat Improvement Center (CIMMYT), based in Mexico; CIP, based in Peru; the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), based in India; and the International Livestock Centre for Africa (ILCA), based in Ethiopia.

81. UNEP has been specially concerned with mountains since 1985 through its programme on Andean ecosystem management and regional workshops on mountains. UNEP will contribute especially to chapter 13, programme area A, objective (b): "To maintain and generate database and information systems to facilitate the integrated management and environmental assessment of mountain ecosystems". It contributed to the NGO Planning Workshop on the Mountain Agenda in July 1994 and the Regional Conference on Sustainable Development of Fragile Mountain Areas in Asia, organized by ICIMOD in December 1994 and will contribute to the conference of intergovernmental and non-governmental organizations scheduled for February 1995 and other international meetings on sustainable mountain development. A publication in the Environmental Management Guidelines series, The Integrated Management of Mountain Ecosystems is being finalized.

82. UNESCO contributed to the activities of the "mountain agenda" group through a trust fund contribution from Germany. Activities in the field of sustainable mountain development are mainly carried out within the framework of the MAB programme (more than 40 per cent of all biosphere reserves recognized under MAB are located in mountain areas); the International Hydrological Programme (IHP), which addresses specifically the hydrology of mountainous areas; earth science programmes such as the International Geological Correlation Programme (IGCP), which focuses on geological factors controlling the global environment; and programmes related to the International Decade for Natural Disaster Reduction, which address the vulnerability of, for example, landslide-prone areas using appropriate technologies such as remote sensing and geographic information systems. A synthesis of MAB research in mountains of western and eastern Europe (including the former Soviet Union) was published in the third quarter of 1994. A similar synthesis for tropical mountains is in preparation.

83. UNICEF is represented and active in many mountain countries, especially because mountain people are amongst the most vulnerable, with high child mortality rates. A study on children and poverty in mountains is in preparation. As a follow-up to Agenda 21, the UNICEF Executive Board, in 1993, formally adopted a policy to integrate primary environmental care (PEC) in all UNICEF-assisted programmes. Special attention is to be devoted to mountain areas and other ecologically stressed and vulnerable areas, and greater efforts are to be made in reaching the poorest, whose livelihood has been seriously affected by resource degradation.

84. The UNU mountain programme was initiated in 1978 under the title "Project on highland-lowland interactive systems" and subsequently renamed "Mountain ecology and sustainable development". Its objectives are to train scholars, carry out scholarly and applied research, disseminate results and develop an international mountain network. UNU was a major partner, together with IMS, ICIMOD and others in the preparation and dissemination of the two main publications on mountains issued in preparation for UNCED - The State of the World's Mountains: A Global Report, and An Appeal for the Mountains.

85. The mountain research initiated by UNU has involved extensive field studies in the Himalayas, Thailand, south-west China, the Andes, Ethiopia and Kenya. The work has included studies on natural and man-made mountain hazards, human impacts and human environmental perceptions. Each sub-project has also contributed to the training of young scholars in the host countries. Especially important is the series of challenges to conventional environmental wisdom and the insistence on respect for the indigenous environmental intelligence of the subsistence farmer. In particular, this has led to a deeper understanding of the relationship between deforestation in mountain areas by subsistence farmers (especially in the Himalayas) and downstream devastation on the plains (especially Gangetic India and Bangladesh). The work has been backed up by a long series of regional and international conferences and training programmes, and the publication of their proceedings in the UNU journal, Mountain Research and Development, and other forms. This enabled UNU, in conjunction with IMS, ICIMOD and others, with funding by the Swiss Development Cooperation, to formulate "Mountain Agenda 1992" and so play a major role in ensuring the passage of chapter 13 as part of Agenda 21. The primary ongoing activity involves a major study of a Central Asian mountain transect, including the

Pamirs-Tajikistan-Karakoram-Himalayas-Tibetan Plateau-Hengduan Mountains. This is linked with work being undertaken by two major German programmes, the National Centre for Scientific Research (CNRS) of France, ICIMOD, the Ford Foundation and UNICEF.

86. The World Bank is providing loans to Governments for carrying out about 50 projects specifically in mountain areas, some of which are using highly innovative approaches. Three main areas of challenge have been identified: recognition of mountains as ecosystems; culture in mountain ecosystems; and finance and support for action.

3. Organizations outside the United Nations system

87. The role of NGOs in the follow-up to chapter 13 was confirmed at the first ad hoc inter-agency meeting, which recommended that NGOs initiate a consultative process on the "mountain agenda" and make proposals to the Commission on Sustainable Development. In response to that recommendation, TMI convened the NGO Workshop on the Mountain Agenda (West Virginia, United States of America, 22-26 July 1994), where detailed plans were made for a global conference of intergovernmental and non-governmental organizations on the follow-up to chapter 13, to be held at Lima in February 1995, in time to make proposals for the third session of the Commission, in April 1995. The Workshop also concluded that NGOs would cooperate with Governments in the implementation of chapter 13, as approved by UNCED.

88. It is anticipated that following the interest and constructive commitment of international NGOs, national and local NGOs will become directly involved in the follow-up to chapter 13. Their participation will be increasingly important as implementation of decisions related to the chapter moves from meeting rooms to the field.

89. The International Centre for Alpine Environment (ICALPE) is an independent, international organization which, since 1987, constitutes a permanent scientific basis for research, management and policy actions on environmental and other matters in the mountain regions of Europe, including eastern Europe and the Russian Federation.

90. ICIMOD has the potential to play a key role in implementing chapter 13. It has a strong regional focus (the Hindu Kush-Himalayas region), but a global conceptual orientation. There is a high degree of coincidence between ICIMOD activities and Agenda 21. The Centre has stepped up the process of promoting collaboration in many different fields of key importance to sustainable mountain development. In 1994 alone, 10 workshops and seminars were held, during which scientists and development workers from its eight member countries identified key issues of common interest, and case studies, guidelines and manuals were developed as well as on-farm research and demonstration sites in six countries of the Hindu Kush-Himalayas. In connection with its tenth anniversary, ICIMOD organized an International Symposium on Mountain Environment and Development in December 1993.

91. IMS had a major role in the "mountain agenda" group promoting the mountain cause and in the inclusion of the chapter on mountains in Agenda 21. Much of the present knowledge and clarifications in the discussion on mountains have been developed in partnership arrangements between IMS, UNU, IUCN, UNESCO and ICIMOD. The journal Mountain Research and Development and the International Mountain Network Newsletter could be used as a basis for chapter 13 networks. The President of IMS is currently Chairman of the International Geographical Union's Commission on Mountain Geoecology. Ongoing activities include involvement in a research pilot project of the Yunnan Academy of Social Sciences, China, with support from the Ford Foundation, and UNU/IMS support for the establishment and growth of regional mountain associations: African Mountains Association, East Asia/Pacific Mountain Association and Andean/Latin American Mountain Association.

92. IUCN is involved in supporting national and international mountain initiatives, including the protection of mountain regions through the establishment of national parks and other protected areas. Since 1991, it has had a Vice-Chairman for Mountains in its Commission on National Parks and Protected Areas (covering a network of 180 managers and researchers) and a staff person with part-time responsibilities for mountains. Activities include support for the establishment of the Karakorum National Park in Pakistan and the evaluation of several of the world's most outstanding mountain parks for inclusion in UNESCO's World Heritage List. The total number of mountain protected areas on the List is now 31.

93. The programmes of TMI focus on ecosystem conservation, education and economic opportunity for mountain people and "sacred" mountains, linking culture and natural resource management practices. The Institute was established 20 years ago. Its main achievements are in the areas of base-line surveys and biological databases; applied technology; people and wildlife interactions; mountain agriculture, non-timber forest resources and crafts; training and capacity-building; institutional development; cultural research and preservation, including archaeology; and innovative partnership. TMI organized the highly successful NGO Planning Workshop on the Mountain Agenda in July 1994, laying the foundation for the global conference of intergovernmental and non-governmental organizations in February 1995.

III. CONCLUSIONS AND PROPOSALS FOR ACTION

A. Conclusions

94. Chapter 13 of Agenda 21 (Managing fragile ecosystems: sustainable mountain development) is recognized, not only by Governments and inter-governmental organizations, but also by the international mountain NGO community, as the basic plan of action for the "mountain agenda".

95. The ad hoc inter-agency meeting on chapter 13 convened by the Task Manager, FAO, in March 1994, and the NGO Planning Workshop on the Mountain Agenda convened by TMI in July 1994, have produced a productive cooperative network of intergovernmental and non-governmental organizations concerned with sustainable mountain development. There is agreement that a political and economic

"mountain lobby" needs to be generated, enabling mountain people to fully demonstrate their potential contribution to sustainable development, with a thorough understanding of the specificity of mountain issues, similar to that for small island developing States.

96. The "mountain agenda" therefore includes the launching of a process of preparation of a number of initiatives, particularly through the organization of regional consultations, leading to a major global consultation on sustainable mountain development, including a follow-up plan of action. Multi-donor support and host and sponsoring countries are needed.

97. One of the main difficulties encountered so far is the lack of adequate recognition of mountain areas as something special, with common problems not shared by lowlands, and therefore worthy of special attention. The fragility of mountain ecosystems and the adverse impact of the degradation of those ecosystems on lowland populations have not been fully appreciated. This is reflected in the lack of mountain programmes of agencies, but maybe even more so at the national level, where it is still rare to find departments, programmes or legislation, dealing in a comprehensive way with mountain issues. More often than not mountain areas and populations are at the "thin end" of general national programmes of education, health and infrastructure, mainly because the cost per person of providing such services in remote mountain areas is above the national average and therefore seen by sectoral agencies as uneconomical, and because mountain communities often lack the necessary economic and political influence.

98. The empowerment, equity and equality of mountain women should receive priority attention, together with improved services related to women's specific needs, reproductive health and nutrition; education aimed at closing existing literacy gaps between boys and girls, and between men and women; and ensuring women's access to development and technology transfer programmes.

99. Sustainable mountain development in many places has to start with a change in attitude towards indigenous people and in the way they are treated. Their right to the land should be recognized, as should their knowledge of the special living conditions and natural resource management in the mountains, and they should be protected from exploitation by extractive industries, drug dealers, tourist operators and guerrilla movements. The role of children and youth in sustainable mountain development should also be recognized. Not only will they inherit the responsibility of looking after the environment in the future, but they can also be active supporters of today's endeavour. Their interests can best be served by employing a participatory approach that involves them in the whole process of developing programmes and action plans.

100. A new and hard look needs to be taken at the overall flow of resources and services to and from mountain areas, including water, forest and range products, labour and government services. New or revised water tariffs, forest and mining royalties, grazing rights and leases, marketing of medicinal herbs and other non-wood forest products, fees for access to national parks and licences for tourism operations are all possible income earners for mountain communities, which would in turn allow these communities to invest in, and not receive as government hand-outs, housing, communications, roads, education and nutrition.

Of special interest in financing mountain development is the increasing recognition of the economic value of water (in this connection see chapter 18 of Agenda 21 and the Water Resources Management Policy Papers of the World Bank).

101. Some progress has been made concerning the sustainability of development in mountain areas. Government and development agencies are increasingly aware that the limiting factors in sustainable mountain development is not only lack of "assistance" (technical, medical, food) but also lack of "empowerment" (land titles, local autonomy, generation of income). There is a need to examine the relationship of chapter 13 with other chapters of Agenda 21 and to analyse the extent to which the concerns of mountain areas can be better integrated in the follow-up action on other chapters. Of equal importance is the analysis of ongoing programmes of United Nations organizations, including the World Bank, the CGIAR centres and donor agencies to see how priorities for mountain areas are reflected.

B. Proposals for action

102. The main proposals for action were identified through a broad participatory process involving the major NGOs and were made in five areas in which progress is deemed to be urgently needed: eradicating poverty; strengthening a global information network and database; strengthening country capacity; raising awareness through the preparation and organization of a world conference on sustainable mountain development; and formulating and negotiating regional or subregional mountain conventions and possibly developing a global mountain charter.

103. The estimated average total annual cost of implementing the activities of chapter 13 made by the Conference secretariat prior to the Conference should be reviewed by Governments, leading to readily available or additional resources being earmarked for immediate action, especially action directed towards eradicating poverty. It may be recalled that there are already a number of international, national and local organizations with a mandate in sustainable mountain development, but with severe limitations of staff and funding. Matching their institutional mandate, professional expertise and proved record with adequate financial support would have a direct measurable impact in the short and medium term.

104. Support should be provided for strengthening a global information network and database, as outlined in chapter 13 of Agenda 21, programme area A (Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems). A small secretariat should be established for this purpose. The proposed lead agency is UNU, in collaboration with FAO, IMS and TMI, among others. The network would provide the linkage between NGOs, regional mountain associations, mountain scholars and academic institutions, and should ensure the process of bringing increased understanding of mountain ecosystems, watershed processes and culture-development processes to decision makers and the public concerned. The network would also promote research and monitoring activities at the grass-roots level. Databases would enable the preparation of atlases that highlighted the global and regional role of mountain ecosystems. Support would be given to regional assessments and surveys,

regional mountain database and information systems and regional action guidelines, as well as to monitoring the state of the environment and development of the world's mountains.

105. Support should be provided for generating country capacity and formulating national mountain action programmes as outlined in chapter 13 of Agenda 21, programme area B (Promoting integrated watershed development and alternative livelihood opportunities). Initially, a small-grants mountain facility would be needed to assist countries in formulating and initiating implementation of sustainable mountain development programmes. Consideration should be given to decentralizing decision-making and programme formulation to the level of administrative units. Proposed lead agencies are FAO, UNDP, UNEP, UNICEF and bilateral donors. Primary environmental care on a watershed basis could provide a conceptual framework, whereas the planning and formulation methodologies developed by TFAP could serve as a model for a country-driven, multi-stakeholder, process-oriented, participatory approach. Increased funding for poverty alleviation as a first step towards sustainable development in mountains is urgently required.

106. The Commission on Sustainable Development may wish to urge interested countries and organizations to promote initiatives aimed at raising awareness, including the organization of a world conference on sustainable mountain development. Host country and sponsoring countries and agencies would need to be identified. It is proposed that such a conference be held early in 1997. In preparation for the conference, regional intergovernmental workshops would be organized. Non-governmental organizations would be actively involved in the process. The three main objectives of the conference would be (a) to mobilize a political and economic "mountain lobby" capable of demonstrating to Governments, policy makers and planners the potential contribution of mountain areas to national and regional development; (b) to introduce the financial and planning instruments needed to incorporate mountain development into national plans and budgets; and (c) to examine the specific human, social and technological characteristics of mountain areas.

107. Support should be provided for the formulation, negotiation and implementation of regional or subregional mountain conventions and possibly the formulation of a global mountain charter.

Notes

1/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ Two main groups of mountainous countries should be considered in this context - those where mountain people and mountain areas constitute the main focus of development (Bhutan, Lesotho, Nepal, Yemen), and those where mountain people and mountain areas are only a part of the national socio-economic scene (China, Ethiopia, India).

3/ In terms of poverty and the impact of environmental degradation, children and women in poor mountain areas constitute the most disadvantaged and vulnerable groups. Statistical data point to some of the highest infant and maternal mortality rates in mountainous regions of developing countries.

4/ A special situation exists in eastern and southern Africa and on a more limited scale in other tropical mountainous countries, in the sense that the uplands, because of their favourable climates and fertile soils, have been occupied by wealthy farmers and farming enterprises. These include tea and coffee estates, forest and fruit tree plantations and cattle and wildlife farms. Long-term sustainability of development in such areas appears to be linked more to socio-political aspects than to environmental considerations, since these areas are not particularly fragile and soil erosion can be kept within acceptable limits. Provided politically acceptable land ownership patterns and levels of employment can be maintained, these uplands have the potential for very high production and income-generation levels and for playing an important role in the national economy.

5/ Report of the International Conference on Population and Development, Cairo, 5-13 September 1994 (A/CONF.171/13 and Add.1), chap. I, resolution 1, annex.

6/ Report of the United Nations Conference on Environment and Development ..., resolution 1, annex II, para. 13.8.

7/ The complete list of agencies involved up to the time of reporting in the E-mail Network on Mountains and with identified focal points for follow-up to chapter 13 include: ILO, UNESCO, World Bank, World Monetary Organization, IFAD, United Nations Industrial Development Organization, United Nations Conference on Trade and Development, UNDP, UNEP, UNICEF, World Food Programme, UNU, United Nations Centre for Human Settlements (Habitat), Department for Policy Coordination and Sustainable Development of the United Nations Secretariat, African Development Bank, ICIMOD, IUCN, IUFRO, TMI, IMS, CIP/CGIAR, CIRAF, IDRC and African Mountain Association. In addition, a number of universities and national NGOs participated in the NGO Planning Workshop on the Mountain Agenda convened by TMI in July 1994, including the International Academy of the Environment (Geneva), Worldwatch Institute, Office of the Governor of the Pueblo of Zuni (United States of America), University of Bern (Switzerland), Charles University of Prague (Czech Republic), the University of San Andrés (La Paz, Bolivia), Earth Council (San José, Costa Rica), the Chinese Academy of Sciences, the South-East Asian Mountain Association, the University of Oxford (United Kingdom of Great Britain and Northern Ireland), King Mahendra Trust for Nature Conservation (Nepal), and the Fundación Peruana para la Conservación de la Naturaleza. The International Centre for Alpine Environment (ICALPE) is also actively involved in international scientific cooperation on environmental issues in mountain areas in Europe.